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ABSTRACT

The 1976 Vocational Education Act set up procedures governing the flow of funds from the federal government to the states and from the states to the localities; and it establishes priorities for distribution of funds. The Act also demands that money be spent only on the programs or activites mentioned in the Act and that certain minimum proportions of federal grants are to be spent in providing training for the handicapped, the disadvantaged, and those with limited knowledge of English. This study was conducted to determine how well these mandates are being met. Data were collected from the Vocational Education Data System (VEDS) and from various state, local, and federal government reports. Findings included the following: (1) The formula specified by the Act for distributing VEA funds to the states does not target funds effectively; it directs more funds to southern and western states with relatively low rates of unemployment. (2) There is no systematic relationship between the distribution of funds within states and factors specified by Congress for determining the distribution of funds. (3) Even when states satisfied the instructions to concentrate resources in school districts with particular characteristics, the degree to which they met these requirements varied greatly. (4) Funding for targeted populations rarely exceeded mandated minimum levels and sometimes did not meet minimums. In general, it was found that federal vocational education law is ambiguous and ineffectively administered; has ineffective matching requirements; requires excessive data collection and reporting; and is inadequately coordinated with other federal education policies. (KC)

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Descriptive Study of the Distribution of Federal, State, and Local Funds for Vocational Education

Final Report

The Project on National Vocational Education Resources
School of Education, University of California, Berkeley

September 1981

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SUMMARY OF MAJOR FINDINGS BY CHAPTER

Chapter II: Data Collection

1. Despite the establishment of the Vocational Education Data System (VEDS), there still is no complete, carefully verified, centralized source of data for planning and evaluating federal policy for vocational education. While VEDS has brought badly needed standardization to the collection of data, as well as improvements in the accuracy of reporting, VEDS does not readily supply much of the information needed to analyze the distribution of federal VEA funds. Most serious among VEDS shortcomings is its failure to report any information by eligible recipient.

2. Most states lack management information systems sophisticated enough to report reliable data for vocational education on an annual basis. Only a few states have fully computerized data systems, and most still rely on paper to transmit substantial amounts of data. There is a strong need for technical and financial assistance to improve states' data management capabilities.

Chapter III: Distribution of Federal Vocational Education Funds to the States

3. The formula specified by legislation for distributing VEA funds to the states does not target funds effectively. A state's allocation bears no relationship to the size of its vocational education program, its state and local expenditures for vocational education, the number of students with special needs enrolled in vocational education, or the economic conditions of the state.

4. The two factors determining the distribution of VEA funds to the states, age distribution of the total population and per capita income, direct more funds per capita to southern and western states with relatively low rates of unemployment and away from the northeastern and northcentral states with higher rates of unemployment.

Chapter IV: Distribution Procedures Used by States to Allocate VEA Funds to Eligible Recipients

5. The failure to resolve serious ambiguities and contradictions in the language of the legislation affecting the distribution of funds by states to eligible recipients has produced much confusion among states as to what constitute acceptable procedures for allocating VEA funds.

6. As of 1978-79, no state was using a funds distribution procedure free of technical difficulties, arbitrary judgments, unexplained calculations, questionable interpretations of federal law, or inaccurate or inappropriate data.

Chapter V: Patterns of Funds Distribution Within States

7. In none of the twelve (12) states selected for analysis was there any systematic linear relationship between the amount of VEA funds allocated to an eligible recipient and measures on the various factors Congress specified for determining the distribution of funds -- location in an economically depressed area, offering new programs, relative financial ability, and concentrations of low-income families or individuals. This finding holds for both secondary and postsecondary programs.

8. At the secondary level, seven (7) of the twelve (12) states studied did, on the average, direct more VEA revenues per student to LEAs with below average relative financial ability, above average unemployment rates, and above average concentrations of low-income families. However, in these states the pattern was not consistent across LEAs.

9. At the postsecondary level, none of the six (6) states examined consistently allocated more VEA funds per student to eligible recipients with above average unemployment rates, below average relative financial ability, and above average concentrations of low-income families. Results were mixed when each of these factors was examined individually.

10. For both levels, and especially for postsecondary programs, several of the factors specified by legislation and regulations for determining the distribution of funds are not readily measured for school districts whose boundaries do not coincide with municipal or county boundaries.

11. Even when states technically satisfied the instructions to concentrate resources in school districts with particular characteristics, the degree to which they met these requirements varied greatly, with some states allocating only ten percent more per student to districts with above average concentrations of low-income families, while another state allocated twice as much per student.

12. Where some federal funds were allocated in accordance with the factors specified by law, the resulting pattern of federal funds was often offset by the distribution pattern of state and local funds.

Chapter VI: Funds Distribution Further Considered: Services by Function and by Client Population Served.

13. Although P.L. 94-482 specified 13 different activities on which states may expend funds allocated under Section 120, on the average for the U.S. as a whole, states allocated over 80 percent of these funds for supporting on-going vocational programs and approximately 10 percent for state and local administration.

14. With respect to the requirements that states allocate 10 percent and 20 percent of funds allocated under Subparts 2 and 3 for programs serving the handicapped and disadvantaged, respectively, few states allocated significantly more than these minimum amounts, and some allocated less.

15. States allocated substantially greater portions of federal funds than state and local funds to programs for the handicapped, the disadvantaged, and students with limited English proficiency.

16. In a survey of local education agencies (LEAs) in ten states, twenty percent of the secondary LEAs and nine percent of the postsecondary LEAs did not receive VEA funds in FY 1979. The most frequently cited reason for not receiving funds was insufficient staff and resources to prepare proposals, followed by failure to apply because data requirements are too burdensome.

17. Sixty-four percent of secondary LEAs said they had handicapped students mainstreamed in regular vocational programs, but only 22 percent of all secondary respondents said they incurred excess costs for mainstreamed students. Twenty-two percent said they incurred excess costs for handicapped students enrolled in special programs.

18. Eighty percent of postsecondary LEAs reported having handicapped students mainstreamed in regular vocational programs. Thirty-seven percent said they incurred excess costs for mainstreamed students, and 29 percent reported excess costs for handicapped students in special programs.

19. Over 70 percent of secondary and 90 percent of postsecondary LEAs had disadvantaged students participating in regular vocational programs, but only 23 percent and 42 percent, respectively, incurred excess costs for these students.

20. Seventeen percent of secondary and 50 percent of postsecondary LEAs said they had vocational education students with limited English proficiency, but only four percent and 20 percent, respectively, said they incurred excess costs for these students.

21. In half the secondary LEAs incurring excess costs, total federal assistance to cover these costs was less than $3,550 for mainstreamed handicapped students, less than $6,000 for mainstreamed disadvantaged students, less than $11,000 for handicapped students in special programs, less than $15,000 for disadvantaged students in special programs, and less than $5,500 for students with limited English proficiency. Comparable figures for postsecondary were typically two to three times higher.

22. Twenty-two percent of secondary and 40 percent of postsecondary LEAs reported spending funds to promote sex equity. In half of these secondary LEAs, expenditures amounted to less than $500; in half the postsecondary LEAs, expenditures were less than $4,800.

23. Five percent of the secondary and 20 percent of the postsecondary LEAs said they had hired or reassigned teachers to promote sex equity.

24. Twenty percent of secondary and three percent of postsecondary respondents reported that their total budget, including VEA funds, was used to maintain existing programs.

25. Thirty-eight percent of secondary and 48 percent of postsecondary LEAs reported using at least seven percent of their total budget to improve programs.

Chapter VII: Program Participation and Program Offerings

26. Relative to their numbers in the larger student population, minority students are generally underrepresented or proportionately represented in vocational education programs at the secondary level; however, at the postsecondary level, minority students are substantially overrepresented in several states.

27. Relative to their numbers in the larger student population, girls are overrepresented in consumer and homemaking programs, while boys dominate trade and industrial programs, as well as the largest agriculture programs. Additionally, women are underrepresented in most postsecondary technical programs.

28. Relative to their numbers in the larger student population, black students are generally overrepresented in occupational consumer and homemaking programs and underrepresented in trade and industrial programs.

29. Relative to their numbers in the larger student population, disproportionately small numbers of handicapped, disadvantaged, and limited English proficiency students receive special services while enrolled in vocational education. Whether these students are actually underrepresetned in vocational education cannot be determined because states are instructed by VEDS to count only those students receiving special services funded with VEA monies.

30. When vocational education programs were ranked in terms of employment opportunities and average expected wages, analysis of programs in five states revealed that women were consistently concentrated in programs with a large number of job opportunities but with low wage expectations. A similar but considerably weaker pattern was observed for minority students enrolled in vocational education.

Chapter VIII: Vocational Education in Large Cities

31. During site visits to seven large cities, it was observed that vocatioal education programs in vocational high schools or in shared-time area schools were generally superior to those in comprehensive high schools.

32. Access to high quality vocational education programs for minorities, women, the handicapped, the disadvantaged, and students with limited English proficiency is often impeded for at least one or more of four reasons: 1) geographic isolation of programs, 2) limitations on program enrollments, 3) program admission requirements, and 4) restricted job entry.

33. As a general rule, VEA funds have no direct, easily identified effects on either the quality of vocational education programs in the cities or the access of students with special needs. In most cities, the federal dollar is not easily distinguished from state or local dollars. There are, however, notable exceptions, and in both Boston and New York City, local officials gave evidence of activities that would not have been possible without VEA funds.

34. Local economic conditions play a major role in determining the effectiveness of vocational education in placing students in jobs.

Chapter IX: The Future Interest of the Federal Government in Vocational Education

35. Existing federal legislation for vocational education suffers from four major deficiencies: 1) ambiguous objectives and ineffective administration, 2) ineffective matching requirements, 3) excessive data collection and reporting, and 4) inadequate coordination with other federal policy concerning education and occupational training.

CHAPTER I

OBSERVATIONS ON VOCATIONAL EDUCATION: ITS NATURE AND ITS LEGISLATIVE SETTING

Vocational education is a national system of occupational training. The training offered in vocational programs is intended to prepare workers for certain kinds of jobs requiring a level of academic competence up to the associate of arts degree, as granted by community colleges, but not beyond that level. The main branches are agriculture, industry (manufacturing and construction), distributive trades (retailing, etc.), health occupations, office occupations, and consumer and homemaking skills. In 1978-79 it is estimated that 17.3 million students were enrolled in programs subject to the provisions of the Vocational Education Act of 1963 (VEA). Of this number, 7.7 million were engaged in "occupationally specific programs," i.e., those programs designed to prepare workers for defined jobs and trades. Total expenditure of funds on VEA programs from federal, state, and local government in 1979 is estimated to be $6.5 billion. Vocational education is an activity of substantial size.

Over the years, vocational education has become an extraordinarily diverse set of operations. Vocational education programs are offered in specialized high schools, regional training centers, comprehensive high schools, community colleges, technical institutes, correctional institutions, and private work places. Approximately 200 occupationally specific (and distinct) programs are being carried forward at any one time in one place or another in the country. It is possible to find as many as fifty programs in a single major training institution. Programs may extend over several years or they may have a length of a few weeks. Students may be of any age and academic background. One common element in vocational programs, however, is that the instructor is expected to be skilled in the trade or craft he (she) teaches and, if appropriate, to hold a craft or trade certificate. On the other hand, not all vocational teachers hold teaching credentials.

For what functional purpose does vocational education exist? Any country needs to be concerned about the quality of work skills in the labor force, for if a country falls behind its economic rivals in output per labor hour, not only does its balance of payments suffer, but its long-term military potential falls into question. At the turn of the century, raising the level of work skills was the chief reason cited for developing a national policy of vocational education. To cite a need for skills development, however, does not establish a case for placing the responsibility on a highly decentralized system of general secondary schools. In most countries, indeed, academic preparation and skills development are carried forward in separate, specialized institutions.

Passage of the Smith-Hughes Act in 1917 marked the entry of the federal government into development of educational policy for schools, and the first matter to draw the interest of the federal government was skills development. But the national system of vocational education has its roots in not one but two policy concerns: (1) to improve the quality of skills in the work force, as already mentioned, and (2) to reform the American high school, the better to serve interests of practical students, as compared with bookish students, and thus to create a new thing, a "comprehensive high school," in which students of different backgrounds and interests could all find a valued place.

From 1917 until 1963, vocational programs were confined basically to the high school setting. In spite of this, the vocational education movement grew and prospered, assisted strongly by a federally-initiated administrative structure that served to mobilize state and local political support. Yet, the Smith-Hughes approach also fostered a high degree of separation within the comprehensive high school, with vocational faculty and students having little contact with their peers in academic programs. It was also true in many places that the vocational track never achieved parity of esteem with the academic. Thus, the actuality of the comprehensive high school fell short of the high hopes held for it by the turn-of-the-century visionaries who sought a sense of equal worth for instruction in Latin and machine shop. There was also a feeling sometimes expressed that administrative offices at both the federal and state levels stifled local initiative and smothered local operations with an excess of regulatory detail.

For several reasons, the Vocational Education Act of 1963 marks a watershed in federal policy for skills development. For one thing, the Act encouraged the extension of vocational education into the postsecondary level of education. Vocational educators not only received a larger sphere of action, but also gained the prestige and status associated with postsecondary operations. There were other favorable developments for growth. Vocational programs expanded, along with most other educational offerings, because of the rise in the size of school and college age populations, and also because space exploration, economic growth, and finally the Vietnam war created a substantial need for work skills.

Second, the 1963 Act provided that federal funds could be used to provide training for "...persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program" (Section 4(a)(4)). In both subsequent reauthorizations of the 1963 Act (1968 and 1976), members of Congress expressed serious doubts about the effectiveness with which vocational educators dealt with these "special needs" or "target" populations. In 1976, concern in Congress developed specifically from a report of the Controller General (What is the Role of Federal Assistance for Vocational Education?, December 31, 1974), in which it was stated that state governments had distributed federal funds to local authorities without paying close attention to the fact that some local agencies have greater needs than others and, that persons with special needs, the disadvantaged and handicapped, had not been given a high priority toward assuring their participation in vocational education.

At the time of the 1976 reauthorization, policy issues had thus become strongly distributional: (1) is the federal money so passed out that low wealth places, for example, and places with high rates of unemployment receive a disproportionately larger share of it? (2) are extra services provided for people that in their absence would have trouble finding a job? These are among the main questions we seek to answer in this Report: where does the federal money go and is it used to meet the needs of target populations? We hasten to add that these are not the only financial questions we deal with; we consider as well the distribution of state and local revenues for vocational education, expenditures on services, and many other money matters having to do with flow of funds.

In its concern with distributional issues, Congress directed the National Institute of Education also to provide information on the results of the 1976 Educational Amendments (the current VEA law) as affecting "...occupations, target populations, and enrollments..." (P.L. 94-482, Title V, Part B, Sec. 523(b)(1)(A)). It is one thing for local authorities to spend extra money on members of target populations and quite another to see to it that they are proportionately represented in specific occupational programs that lead easily to well-paying jobs and to jobs that provide a ladder to a substantial career. Under our contract with the National Institute of Education, we were able to investigate the pattern of enrollments by disadvantagement, handicapping condition, limited English proficiency, and race. We arrayed programs by "quality," referring to average pay and job opportunity, and considered enrollment patterns in terms of these quality indexes.

The main new focus of the 1976 legislation -- with regard, that is, to distributional issues -- was the charge to vocational educators to overcome sex stereotyping in training and employment. Accordingly, we examined the distribution of enrollments by sex in terms of our quality indexes, and, as the reader will see below, the primary form of discrimination in vocational education appears to be on account of sex (race appears to be the second most powerful discriminatory factor).

Let us now draw together the various strands of argument about the functional responsibilities of our national system of vocational education. At the present time these appear to be three: (1) to develop the skills of the work force (historic purpose); (2) to help hard-to-place people find a good job; and (3) to overcome sex stereotyping in training and work. What is left off the list is the use of vocational education to broaden the curriculum of the American high school. Indeed, as we shall suggest in our concluding sections, there may well be a contradiction between perfecting the comprehensive high school and serving the three other functions cited above, because in many comprehensive high schools the quality of vocational education attainable in that setting may be insufficient. In other words, to achieve a technologically adequate level of skills and simultaneously to reach distributional objectives for target populations and women may require us to expand offerings in specialized, regional, or postsecondary institutions, rather than in the comprehensive high school. But more about this later.

The Current Federal Vocational Education Act (P.L. 94-482, Educational Amendments of 1976

PONVER has collected and analyzed a vast amount of data on our national system of vocational education. Since not all readers may be familiar with the legislation that establishes that national system and since some such basic understanding is required to make our quantitative results intelligible, we now describe certain important provisions of the Educational Amendments of 1976, especially as they affect funds distribution. Interwoven with our comments to describe the Act, we offer observations on problems that have arisen in implementing it.

The 1976 Vocational Education Act contains the following general objective: that "...persons of all ages in all communities...those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market, but need to upgrade their skills or learn new ones, those with special educational handicaps, and those in postsecondary schools, will have ready access to vocational training or retraining which is of high quality, which is realistic in light of actual or anticipated opportunities for gainful employment, and which is suited to their needs and interests, and ability to benefit from such training" (P.L. 94-482, Sec. 101(4)).

To assist states to meet this general objective, Congress authorized federal grants to the states for the purpose of extending, improving, and "where necessary," maintaining programs of vocational education; developing new programs of training; dealing with the problem of sex stereotyping, and providing part-time employment for youth who need the earnings to be able to attend vocational education classes (P.L. 94-482, Sec. 101(1)-(4)).

Once Congress appropriates funds for vocational education, and once this application for funding by a given state has been approved, the amount of federal vocational funds distributed to that state, which is to say, any state, is determined by one basic formula, a formula that is unchanged essentially from the one adopted in 1963.

The federal formula is of the weighted population type. Any state's share of the federal appropriation for vocational education is given by its proportionate share of the total of weighted populations of the whole country. If, for example, a state's weighted population represents ten percent of the weighted population of the nation, it is entitled to ten percent of the VEA appropriations for the given year, no more and no less.

How are the weights applied to populations? For the federal formula, in two ways: (1) by the size of the state's population within specified age categories, and (2) by the relationship between personal income per capita in the given state and national personal income per capita. The income adjustment is specified to be

$$1 - .5 \times \left(\frac{\text{per capita income of state}}{\text{per capita income of nation}} \right).$$

This value is multiplied by the age specific populations, and the total weighted population is the sum of these products. Thus, the formula is obviously intended to direct money towards states that have low average income and away from states that have high average income. Fifty percent of the appropriations are distributed by the size of the 15-19 year old cohort, as adjusted by the income factor; 20 percent by the size of the 20-24 year old group; 15 percent by the 25-65 year old group; and 15 percent by the size of the whole working age population, 15-65 (all population groups weighted by the income factor).

It is clear that the federal formula favors states that have younger populations and especially those that have a lot of residents in the 15-19 year old category. It also favors states that are low in average income. Are there important variables that the formula overlooks? The following ones might be mentioned:

(a) The formula gives no consideration to the differences in program costs among the states. Our data, as shown below, indicate that cost differences by program are wide. If economic development in one state requires a predominance of high cost programs while that of another is appropriately based on low cost, then presumably the states are left to their own devices in adjusting to such conditions.

(b) The formula itself provides no special incentives one state to another to expand and improve vocational education. States that are thorough and conscientious in helping local authorities conduct high quality programs get no larger federal grant than states that perform at a minimum level in this field. Neither size of vocational enrollments nor quality of program offered have any direct, continuous relationship to the amount of federal allotments.

(c) The federal formula is unlikely to channel vocational education grants to states that have concentrated populations of low-income youth and areas of concentrated youth unemployment. At first glance, this assertion might be counter-intuitive, since the formula includes an adjustment to place extra money, other things being equal, in a state in which per capita income is below national average. However, the great concentrations of urban poverty exist in the states of the northeast and northcentral regions of the nation: New York, New Jersey, Massachusetts, Pennsylvania, Michigan, and Illinois. All of these states have average income above national average, which is to say that the distributions of their incomes are bi-modal under the condition that people with higher incomes more than offset the concentrations of poverty below the mean. In contrast, the formula to distribute the funds under Title I of the Elementary and Secondary Education Act (1965) employs the low-income student, not the low-income state, as the unit of analysis and thus targets federal money much more precisely toward concentrations of poverty.

(d) The federal formula does not recognize the special needs of states with declining populations. Population declines and industrial closings go hand-in-hand. The work force of snow-belt states may require retraining to enter new lines of work because the shift of economic resources southward has taken away the jobs to which their existing skills apply. Needs of training that are related to migration of industry are not dealt with by the formula at all in states of economic decline and only very weakly in growth states.

Let us now turn from consideration of the federal formula to a discussion of the resource allocation procedures that the 1976 Vocational Education Act prescribes for states to use in dealing with local agencies. We shall describe the procedure as a set of controls about uses of money and then we shall make a general assessment of that set. Rather little of VEA funds are spent directly by state governments, so the within-state allocation procedures specified in the federal Act are what control the uses of VEA funds, insofar as they are subject to federal direction. There are four general types of controls.

1. Local applications and guarantees. Federal funds cannot be distributed to a local agency in the absence of a local application. This application must specify that there exists a local plan for skill development which is consistent with the state plan. A primary ingredient of the state plan, it should be mentioned, is projection of future labor surpluses and shortages. The intent is to see that the local authority plans its programs to meet future labor shortages and to avoid training people for jobs that do not (will not) exist: this is expected to introduce an element of economic efficiency into the delivery of training services. The local application must also indicate that the local program plan has been developed in consultation with a duly constituted local advisory council, consisting of representatives of employers, labor, and educational institutions, and that coordination

exists between VEA programs and CETA programs. Again, these latter assurances are intended to serve the cause of economic efficiency in training. In sum, the process of preparing a local plan and having it reviewed at the state level is a means of controlling expenditure of VEA funds, to see that they are spent on types of occupational preparation that meet labor market demands. The only direct link to funds distribution, however, is this: if a local agency lacked the means to prepare a plan, or if at best it could prepare a plan that was thoroughly unsatisfactory in the eyes of the state administration, then presumably that local agency would get no VEA money and the funds so freed up would be made available to other local agencies.

2. VEA criteria for intrastate funds distribution. The 1976 Vocational Education Act contains a set of criteria states must use in developing a formula to distribute VEA funds to local agencies. The states are required to give priority to local applicants that are located in economically depressed areas and in areas with high rates of unemployment. The states are also required to give priority to applicants that propose new programs and programs designed to meet new manpower needs. Amongst the group of priority applications, the states are required by formula to make a further set of distinctions. Local education agencies (meaning school districts, mainly) are to receive extra dollars of VEA funds to the extent that they are deprived in the amount of locally taxable wealth they possess and to the extent that they contain an unusually large concentration of low-income families. In the case of other eligible recipients (mainly community colleges), the criteria are relative financial ability and the relative number or concentration of students whose needs impose higher than average costs, with the examples given

in the Act of handicapped students, disadvantaged students, and persons of limited English proficiency. States are enjoined, finally, from distributing VEA funds equally per student enrolled, or from using a uniform percentage reimbursement rate on local expenditures.

3. National priority programs. Each state is required to spend certain proportions of its VEA funds on designated classes of persons. Twenty percent at least of each state's allotment is to meet 50 percent of the cost of vocational education for disadvantaged persons except that a portion of the disadvantaged "setaside" is further reserved for persons of limited English proficiency. Ten percent of VEA funds at least are to be spent to meet 50 percent of the costs of vocational education of handicapped persons and 15 percent at least to meet 50 percent of the cost of vocational education for persons who have completed or left high school. This last setaside in effect reserves a minimum of 15 percent of VEA funds for postsecondary programs and altogether the setasides restrict the uses of 45 percent of VEA grants to the states. The section of the Act that describes the setasides makes the further stipulation that persons served by the setasides are to be enrolled in regular vocational programs whenever possible, i.e., they are to be "mainstreamed."

4. Section definitions of expenditures. The Congress appropriates funds under Subparts, also identified by section numbers and the language under section numbers establishes a set of allowable expenditure items. Appropriations for Subparts 2 (Section 120 numbers) and 3 (Section 130 numbers) are made jointly. Subpart 2 then accounts for 80 percent of this joint appropriation. Appropriations for Subpart

4 (Section 140 numbers) and Subpart 5 (Section 150 numbers) are made separately.

Section 120 appropriations may be used for the following purposes: vocational programs per se, work study programs, cooperative programs, energy education programs, construction of area vocational education facilities, reduction of sex stereotyping, student stipends, placement services, industrial arts programs, day care for children of students, programs for displaced homemakers, and construction and operation of residential vocational schools.

Section 130 funds are to be spent on research, exemplary and innovative programs, curriculum development, guidance and counseling, teacher training, and grants to overcome sex bias.

Section 140 funds are designated to pay the full costs of vocational education programs for disadvantaged persons living within areas with high concentrations of youth unemployment and drop-outs. Section 150 funds are to be used in programs of consumer and homemaking education. At least one-third of Section 150 money is targeted for economically depressed areas and areas with high rates of unemployment and is to be used "...to assist consumers and to help improve home environments and the quality of family life" (P.L. 94-482, Section 150(d)).

We have now offered a summary of funds distribution processes as embodied in the 1976 Vocational Education Act. We have seen that there are procedures governing the flow of funds from the federal government to the states and from the states to the localities. It is plain that the federal government intends some states, and, within states, some localities, to receive more federal money than others; in short, the Act establishes priorities of distribution.

The Act also demands that federal funds be spent in certain ways. The money can be spent only on the programs or activities mentioned in the Act -- that is one point. The second point here is that certain minimum proportions of federal grants are to be spent in providing training for certain classes of people, most notably the handicapped, the disadvantaged, and those with limited knowledge of English. It is our task in this report to show how well these various mandates and objectives of funds distribution are being met.

Chapter II

Data Collection

This study had as its primary objective obtaining and analyzing more reliable information about the ways in which federal, state, and local funds are distributed and used to realize the basic purposes of federal vocational education policy. The lack of such information is a long-standing problem. In 1974, the General Accounting Office reported that "the Congress has observed repeatedly that information about vocational education is inadequate for the purpose of formulating public policy and ascertaining whether programs are working properly." To rectify this problem, the Congress established, in P.L. 94-482, the Vocational Education Data System (VEDS) to collect uniform information on vocational education students, programs, completers and leavers, staff, facilities, and expenditures. Establishing VEDS has taken approximately five years, and complete data for 1978-79 were not available until summer 1981. Recognizing early on that VEDS data would not be available in time to be useable, this study was forced to undertake independent collection of data. No other aspect of the study caused greater difficulties or required greater expenditures of time and other resources. Consequently, in this chapter we review the study's data collection efforts and discuss the implications for future analyses of this type.

I. Initial Design Considerations

Pursuant to Section 523(b)(1)(A) of the Education Amendments of 1976 (P.L. 94-482), this study was charged with undertaking an analysis of the "distribution of vocational education funds in terms of services, occupations, target populations, enrollments, and educational and governmental levels." Moreover, the Request for Proposals issued by NIE further stated that the study was to analyze the distribution of funds within states and called for collecting data at the school level. The requirement for intrastate data collection virtually ruled out using any of the data collected by the Bureau of Occupational and Adult Education (now the Office of Vocational and Adult Education) or by the National Center for Education Statistics. BOAE had collected data aggregated to the state level, and VEDS was to continue this practice. Only System 437 collected information at the LEA level, and it reported fiscal information only for federal funds. Moreover, much of this information was considered unreliable by most people familiar with the data systems, and analysis by PONVER of the various national data sets confirmed this claim.*

The requirement for school site data posed an immediate problem, therefore; such information was available only from the schools individually, and collecting it would necessitate a survey of a sample of secondary and postsecondary institutions. Accordingly, the initial proposal called for surveying approximately 1,200 secondary schools and 400 postsecondary institutions in ten states. Collecting data from the school site was also strongly urged by several members of PONVER's National Advisory Board, who felt that this approach was the only way to obtain accurate data on vocational education enrollments, programs, and staffing.

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*See Charles S. Benson, E. Gareth Hoachlander, and Bronia Lena Johnson, An Assessment of the Reliability and Consistency in Reporting of Vocational Education Data Available from National Information Systems, Berkeley, Calif.: Project on National Vocational Education Resources, University of California, 1980.

In the process of designing the data collection instruments, however, discussions with several local school personnel quickly revealed that the collection of school site data was beyond the time and resources of the study. In almost no case was information on revenues and expenditures readily available at the school level. Although most schools could provide some information on vocational education enrollments and staffing, very few could readily provide this information in terms of some measure of full-time equivalency. Without such accuracy, collecting data at the school level could not be justified.

Consequently, data collection procedures were modified to collect all data from the local education agency (LEA). Once again, several members of the study's Advisory Board counseled relying on strictly local data collection, believing local information to be more accurate and detailed than that maintained at the state level. Accordingly, the study pretested a lengthy survey instrument in October 1979, mailing questionnaires to a sample of 69 secondary school districts and 22 postsecondary institutions.

Pretest results were disappointing. The lengthy questionnaire imposed a heavy burden on respondents. Required to comply with substantial requests for data for VEDS and a survey of vocational education being conducted by the Office of Civil Rights, both in the field during fall 1979, most respondents found it necessary to ignore an additional survey in which participation was fully voluntary. Consequently, pretest response rate was low, and several responses were incomplete. Further, some respondents indicated that much of the information requested had already been submitted to state offices in one form or another.

The results of the pretest revealed that a survey of the type initially requested by NIE was not feasible. Moreover, in reviewing the pretest results, the Committee on Evaluation and Information Systems (CEIS) of the Council of Chief State School Officers and the Federal Education Data Acquisition Council (FEDAC) both insisted that the study obtain as much of the needed information as possible from state offices. Because final clearance would be contingent on meeting this requirement, state level data collection became the central feature of the modified data collection efforts.

II. Final Design

When pretest results indicated that strictly local data collection was not feasible, the study redesigned data collection activities into four major areas: 1) state level collection, 2) supplementation of state data with information available from the U.S. Bureau of the Census, the Bureau of Labor Statistics, and the National Center for Education Statistics, 3) a limited survey of secondary and postsecondary LEAs, and 4) site visits to seven major cities. Initially, the study sought information from eighteen states. In ten of these, information was requested from both the state and local level; in the remaining eight, data were requested from the state level only.

A. State Level Data Collection. From the state office responsible for overseeing vocational education, the study sought information on funds distribution, enrollments, and staff for each eligible recipient of VEA funds in the following eighteen states:

Alabama
California
Colorado
Florida
Illinois
Kansas
Massachusetts
Minnesota
New Hampshire
New York
North Carolina
Oklahoma
Pennsylvania
South Carolina
South Dakota
Texas
Utah
Washington

These states were selected purposively rather than randomly. First, they included the five "core" states -- California, Florida, Illinois, New York, and Texas -- common to all of the research being conducted by the NIE Vocational Education Study. The remaining thirteen states were chosen with attention to achieving a good geographic distribution, a balance between urban and rural populations, wide variation in the size of vocational education programs and expenditures, and different types of state board structures for administering vocational education. Additionally, the study sought to eliminate from consideration states that were not likely to be able to provide the necessary data because they lacked automated data processing capabilities.

From each state, the following information was requested for each eligible recipient for VEA funds:

1. Allocation of Fund by Lesiglative Purpose

   a. Amount allocated to district, under Section 120 of the Vocational Education Act, for each of the following legislative purposes. Federal funds were to be reported separately from state and local allocations.

      Vocational Education Programs
      Work-Study Programs
      Cooperative Vocational Education Programs
      Energy Education Programs
      Construction of Area Vocational School Facilities
      Stipends for Students in Vocational Education Programs
      Placement Services
      Industrial Arts
      Support Services for Women
      Day Care Services

        Vocational Education for Displaced Homemakers
        Construction of Residential Vocational Education Facilities
        Handicapped Setaside
        Disadvantaged Setaside

   b. Amount allocated to district, under Section 130 of the Vocational Education Act, in the form of grants by the state, for each of the following purposes; federal funds reported separately from any state and local allocations:

        Research
        Exemplary and Innovative Programs
        Curriculum and Development
        Counseling and Guidance
        Pre-Service or In-Service Training for voc/ed teachers
        Overcoming Sex Bias and Sex Stereotyping

   c. Amount allocated to district, under Section 140 of the Vocational Education Act, for special programs for disadvantaged students; federal funds reported separately from any state and local allocations.

   d. Amount allocated to district under Section 150 of the Vocational Education Act, for Consumer and Homemaking Education; federal funds reported separately from state and local allocations.

2. Enrollments -- secondary, postsecondary, and adult reported separately.

   a. Unduplicated enrollment in each six-digit program by race, sex, academically and economically disadvantaged, handicapped, and limited-English proficiency.

   b. Status of program completers from 1977-78 (by race and sex, if available) for each six-digit vocational education program, classified by: whether employed in same field; in another field; still in school; unemployed; not in the labor force.

3. Personnel -- Unduplicated count of teaching staff in each vocational education program (six-digit code preferred, otherwise two-digit) by race and sex.

At the insistence of CEIS and FEDAC, the study permitted each state to submit data in whatever form constituted the least amount of difficulty for state officials. Thus, states could not be required to conform to a common reporting format, and no state was asked to collect information that was not readily available. Only five of the eighteen states were able to submit complete information in a form that was immediately readable by a computer, i.e., on computer cards or magnetic tape. An additional two states were able to supply the requested secondary data in machine readable form, but were unable to supply the bulk of postsecondary data. Two more states were able to supply some of the information in machine readable form and some information in the form of "hard copy" that had to be prepared for processing before the data could be analyzed. Of the remaining nine states, four were able to supply relatively complete information in the form of hard copy; three could supply some information in hard copy, and one could supply virtually none of the data requested.

In the final analysis, the study was able to obtain useable state level data from twelve states. In four states -- Alabama, Minnesota, New Hampshire, and South Carolina -- we were unable to obtain adequate information on enrollments by LEAs to analyze the distribution of federal and state funds for vocational education. Both Massachusetts and North Carolina supplied the study with some of the information requested, but in both cases the data arrived late and in hard copy; there was insufficient time to prepare and analyze the data.

In every case, states were asked to supply data for the 78-79 academic and fiscal years. Consequently, because the common terminology and reporting requirements established by VEDS were not yet completely in place, data are missing for some variables in several states. Additionally, where technical difficulties in reading data tapes raised suspicions about the accuracy of a particular variable in a state's data, we chose to treat that variable as missing rather than report possibly misleading or inaccurate data. Thus, for example, when our procedures for tabulating data on disadvantaged students in California appeared to produce some double counting of students, we treated this variable as missing even though the state had supplied us with some data. In short, we have gone to great lengths to analyze the data supplied by the states as accurately as possible. We cannot, however, assume responsibility for the accuracy of the data supplied.

Because of differences among states in the ways data were defined and reported, absolute numbers are not strictly comparable across states. Thus, for example, when calculating revenues per student, we generally excluded short-term adults from the calculation where short-term adult enrollments were reported separately. However, some states included short-term adults in a single adult total, and in these instances, the large number of part-time students creates artificially low estimates of revenues per student. Nevertheless, we were always consistent within states, and insofar as the analysis dealt primarily with analyzing relative differences within states, making accommodations for the idiosyncrasies of each state's data should not significantly bias our findings. In any event, the decisions represent the best that could be done if any analysis was to be performed at all.

B. Supplementing Data Supplied by the States. To minimize the data burden on state officials, the study obtained most of the demographic data for such variables as the concentration of low-income families and local unemployment rates from other sources and merged this information with the data supplied by the states. Specifically, the study used data from the following sources:

1. The Elementary and Secondary General Information Survey (ELSEGIS), 1978-79, conducted by the National Center for Education Statistics: information on the size of LEAs (ADM and ADA), county and SMSA codes, secondary enrollment, racial and ethnic data.

2. The Higher Education General Information Survey (HEGIS), 1978-79, conducted by the National Center for Education Statistics: information on enrollments, finances, county and SMSA codes. racial and ethnic data.

3. Applied Urbanetics Merged Federal Files, School Year 1976-77, including the NIE Special Tabulations of Census Data by School District and Equalized Property Values: data on racial and ethnic composition of LEA's population, concentration of poverty, and assessed property value per ADA or ADM.

4. U.S. Office of Revenue Sharing, Series in Local Government Unemployment Rates, Second Quarter 1978; used to determine unemployment rates for secondary and postsecondary LEAs.

5. U.S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook, 1980-81 Edition: average hourly earnings by occupation and estimates of future employment opportunities.

These data were merged with the enrollment and expenditure data supplied by the states for each LEA and figured heavily in the analysis of the distribution of federal funds with respect to the various factors set forth in P.L. 94-482 (relative financial ability, location in an economically depressed area, concentrations of target populations, etc.), as well as analysis of participation with respect to different measures of program quality. We stress that these demographic data are not necessarily those employed by a particular state in determining its allocation of federal funds. States are not presently required to report data for individual LEAs on the various factors used to distribute federal or state funds. Because such information was not readily available from state agencies and because supplying it was judged to impose too great a burden, we relied on these other sources of data to serve as proxies for the data actually used by the states.

C. Survey of Secondary and Postsecondary LEAs. In ten of the eighteen states from whom state level data were requested, the study supplemented this information with the results of surveying a stratified random sample of 941 secondary LEAs and 272 postsecondary LEAs. The survey sought additional information on VEA funding and vocational education programs that was not available from any other sources. To minimize data burden and to tailor the questionnaire to the peculiarities of each state, the study's principal investigator and project director visited each state and met with the state's vocational education director and staff to determine the precise substance and wording of the survey instrument. Thus, in no case was an LEA asked for information that could be supplied by a state office. Generally, the survey asked respondents for information on seven topics:

1. If an LEA did not receive or returned VEA funds, it reasons for not receiving or returning funds.
2. Expenditures of VEA funds on handicapped, disadvantaged, and limited English proficiency students.
3. Expenditures and activities to promote sex equity.
4. Expenditures to maintain, improve, and expand vocational education programs.
5. Changes made by LEAs in vocational education programs and reasons for any changes.
6. The use of federal funds other than from VEA for supporting local vocational education programs.
7. Expenditures for contracting with private agencies.

The survey results are reported in Chapter VI.

In each state, LEAs were stratified by size of the largest city served and divided into seven strata:

1. Rural -- an LEA serving no city larger than 10,000 which is at least 50 miles from any city over 50,000 population in the same SMSA, or at least 25 miles from any city over 50,000 if the LEA lies outside an SMSA.
2. Other LEAs serving cities of under 10,000, excluding LEAs in the SMSA of the state's largest city.
3. LEAs serving cities of 10,000-49,999, excluding any LEAs in the SMSA of the state's largest city.
4. LEAs serving cities of 50,000-99,999, excluding any LEAs in the SMSA of the state's largest city.
5. LEAs serving cities over 100,000, excluding the state's largest city, excluding LEAs in the SMSA of the state's largest city.
6. LEAs surrounding the state's largest city and included within the city's SMSA.
7. The LEA serving the state's largest city.

Once stratified, a sample representing approximately 25 percent of the state's LEAs in each stratum was selected.*

Once the survey instrument had been approved by each state's director of vocational education, the survey plan was submitted to CEIS and FEDAC for final approval, which was obtained early in 1980. Questionnaires were mailed in March 1980 and requested information for the 1978-79 school year.

Table II-1 displays the response rate for each state. At the secondary level, the survey achieved an overall response rate of 62 percent, ranging from 39 percent in Texas to 82 percent in Florida. At the postsecondary level, the average response rate was 78 percent, ranging from 57 percent in Colorado to 100 percent in South Dakota.

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*At the request of the North Carolina state officials, the sample size was limited to 20 percent of the state's LEAs.

Table II-1

Sample Size and Response Rates of Survey of LEAs in Ten States

	Secondary			Postsecondary		
	Sample	Responses	%	Sample	Responses	%
California	94	79	84%	24	18	75%
Colorado	53	41	77%	21	12	57%
Florida	22	18	82%	28	24	86%
Illinois	144	116	81%	31	24	77%
Kansas	71	41	58%	19	14	74%
Massachusetts	63	37	59%	15	10	67%
New York	165	90	55%	74	61	82%
North Carolina	33	28	85%	31	30	97%
South Dakota	51	39	76%	3	3	100%
Texas	245	95	39%	26	15	58%
Total	941	584	62%	272	211	78%

D. *Site Visits*. Finally, to supplement the large amount of quantitative data collected by the survey and from state offices of vocational education, the study conducted site visits to the largest city in seven of the ten states participating in the survey:

1. Los Angeles, California
2. Denver, Colorado
3. Miami, Florida
4. Chicago, Illinois
5. Boston, Massachusetts
6. New York City, New York
7. Houston, Texas

The rationale for these visits was fourfold. First, because these large urban districts serve thousands of students and employ hundreds of teachers in many different sites, the figures for district totals obtained through the study's other data collection efforts provided a very limited picture of vocational education in these districts. By contrast, the data for suburban or rural programs generally represented only one or two schools and therefore provided a more accurate description of that district's operations.

Second, we believed it important to form an impression of the *intra*-district distribution of resources for vocational education. These cities contain large concentrations of target populations, but these groups are not evenly distributed throughout the cities' schools. Therefore, we felt it necessary to determine what arrangements, if any, these LEAs made for targeting federal VEA funds. More generally, we sought to determine what special contributions VEA funds made to vocational education in these cities.

Thirdly, we sought to test, at least impressionistically, the idea that the quality of vocational education programs available to target populations depends in part on local economic conditions. Some of the cities visited, such as New York and Chicago, have been enduring severe fiscal pressures in recent years, while others, such as Denver and Houston, have been enjoying vigorous economic growth.

Fourth, vocational education is offered in a number of different institutional settings: comprehensive high schools, specialized vocational high schools, area schools, and community colleges. Because in central cities one often finds the same vocational education program offered in several settings, the site visits provided the opportunity to form some impressions about the relative strengths of these programs provided under different institutional arrangements.

In these cities, vocational education is a much more complex and diversified activity than the conventional academic program; we do not claim, therefore, that we were able to obtain a complete, systematic view of the entire vocational education program in any of the cities visited. However, we were able to develop some general impressions and elicit a number of concerns relevant for federal policy. In each city, we held lengthy discussions with the city's secondary and postsecondary directors of vocational education, as well as several members of their staffs. Additionally, we visited several school sites and talked to principals, teachers, and students. In several of the cities, we had interviews with the district superintendent of schools. Chapter VIII reports our findings.

III. Implications for Future Studies

One problem clearly emerges from this study's efforts to gather the data necessary to describe the distribution of federal, state, and local funds for vocational education: there still is no complete, carefully verified, centralized source of data for planning and evaluating federal policy for vocational education. While VEDS has brought badly needed standardization to the collection of data, as well as improvements in the accuracy of the reporting, VEDS does not readily supply much of the information needed to analyze the distribution of federal VEA funds. Most serious among its shortcomings is the failure to report any information by LEAs; all information is reported in the form of state totals only. Consequently, it is impossible to use VEDS data to describe and analyze the distribution of funds within states. Moreover, VEDS does not collect any information on the various factors (e.g., relative financial ability, concentrations of low-income families or individuals, unemployment rate, etc.) that are to be used by states to determine the distribution of VEA funds.

If reliable analysis of the intra-state distribution of funds is to be carried out, the following information is required from each eligible recipient on an annual basis:

1. Federal VEA Revenues
    a. Subpart 2
        1.) Handicapped setaside
        2.) Disadvantaged setaside
        3.) Limited English setaside
        4.) Balance of Subpart 2
    b. Subpart 3
        1.) Handicapped setaside
        2.) Disadvantaged setaside
        3.) Limited English setaside
        4.) Balance of Subpart 3
    c. Subpart 4
    d. Subpart 5

2. Revenues from state and local sources

3. Enrollments
    a. Total unduplicated enrollment
    b. Disadvantaged enrollment
    c. Handicapped enrollment
    d. Limited English proficiency enrollment

4. Data on factors employed in state distribution formula
    a. Relative financial ability
    b. Concentration of low-income families
    c. Local unemployment rate
    d. Any other factors unique to the state

Reporting such information could become a standard feature of annual plans or accountability reports. In fact, several states presently include this information in these documents, but the reporting is not universal, nor is it done according to a common format that would permit easy analysis and evaluation. Moreover, states are presently required to report to System 437 the revenue data listed above and must also include counts of "beneficiaries." The data on beneficiaries have been very unreliable, and revenue data for postsecondary institutions have been virtually useless.[*] Consequently, if this information became a standard feature of state plans or accountability reports, it would be possible to drop VEA from System 437 or to arrange for the Office of Vocational and Adult Education to supply the necessary data to System 437, reducing the data burden on state officials.

The study's data gathering experiences reveal a second major problem: most states lack management information systems sophisticated enough to report reliable data for vocational education on an annual basis. Only a few states have fully computerized systems, and most still rely on paper for transmitting substantial amounts of information. There is a strong need for technical assistance that would not only computerize states' data reporting systems but also achieve a greater degree of standardization in reporting.

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[*] See Benson, Hoachlander, and Johnson, op cit.

CHAPTER III

DISTRIBUTION OF FEDERAL VOCATIONAL EDUCATION FUNDS TO THE STATES

As indicated in Chapter I, the distribution of VEA funds to the states is governed precisely by a formula contained in the 1976 Educational Amendments. In this chapter, we continue our discussion of that formula and we describe the pattern of distribution of VEA funds as it existed in 1978-79.

The Components of the Formula for Distributing Federal Vocational Dollars to the States

P.L. 94-482 nowhere states what the Congress seeks in establishing the form of the inter-state distribution of federal vocational dollars. Intent can only be inferred from the content of the distribution formula. It should be noted, however, that the federal formula has not been changed for the last 20 years, i.e., the period during which the Congress sought to target funds ever more precisely to meet the needs of specially-defined populations (disadvantaged, handicapped, etc).

The federal formula is simple. After certain sums are set aside for data analysis and research and for American Indians, the remaining appropriations (approximately 94 percent of the total appropriations) are divided among the states on the basis of a weighted population formula. A given state's share of the amount to be divided is determined by the ratio

$$\frac{\text{weighted population in the given state}}{\text{sum of weighted populations of all the states.}}$$

There are only two kinds of weights employed: age distribution and personal income per capita. Let us consider these separately.

1. Age Distribution Weights. The process is to use data of the U.S. Census Bureau to determine how many people of working age reside in the different states and to assign a degree of significance in the formula to the count of persons in particular age categories. The weights assigned are the following:

Persons aged 15-19	.50
Persons aged 20-24	.20
Persons aged 25-65	.15
Persons aged 15-65	.15
Total of weights	1.00

The following assumptions appear to underlie this choice of weights: a) population is a good predictor of present or potential size of labor force in a given state; b) size of labor force is a good predictor of need for training; and c) present or potential members of the labor force who are below the age of 20 are the most needful of vocational education.

Of these assumptions, the third is the most difficult to understand. The most intense, market-oriented occupational training oftentimes occurs in postsecondary institutions. Yet, the typical postsecondary student is older than 19 years.

Take the following (admittedly extreme) case. Suppose a state has a disproportionately small cohort of 15-19 year olds, a disproportionately large cohort of 20-24 year olds, and a very active program of vocational education at the community college level. The postsecondary institutions might be seen as helping to meet national manpower requirements; nevertheless, the state would receive, other things being equal, a rather small share of federal vocational dollars.

The pattern of distribution afforded by age weights is difficult to predict a priori. The heaviest weight, as stated, is placed on 15-19 year olds, and young persons of those ages ordinarily live in close proximity to their parents. This suggests that the favored states will be ones that have a relatively large number of families at that stage of the life cycle where the heads are in the age range of 35 to 55. Families at that stage of the life cycle are not highly mobile, as compared with younger singles, newly-formed families, and retireees. From this argument, the favored states should be those that received a large number of in-migrants during the decade and a half following World War II. These were, indeed, years of high internal migration in the United States. States discriminated against would be those now experiencing heavy in-migration of singles, newly-formed families, and retirees. However, family size is important as well, and since minority families tend to have been larger in the post World War II period than Anglo families, one might say that the formula benefits states that have a relatively large share of minority population, especially if the minority families are at the 35 to 55 point in the life cycle.

2. Per Capita Income Weights. The population weights described above are further weighted by the relative standing of a state in terms

of personal income per capita. The particular form of the adjustment is to multiply the set of weighted population figures, each separately, by the expression

$$1 - .5 \times \frac{\text{state's per capita income}}{\text{national average per capita income.}}$$

The income adjustment is twice constrained. In the first instance, multiplying the ratio

$$\frac{\text{state's per capita income}}{\text{national average per capita income}}$$

by .5 reduces the significance of that ratio in the total allocation formula. Raising the figure from .5 to 1.0 (or nearly so) would direct additional dollars to poor states and away from rich states. Secondly, the income adjustment, called the "allotment ratio," can range only between the values of .4 and .6. The effect of both constraints is to give a somewhat more favorable treatment to richer states, as compared with poorer, than an unconstrained formula would do.

In any case, the income adjustment has an effect in sending extra federal vocational dollars to states in which average per capita income is relatively low. It might be thus thought that there is a consistency between the federal government's insistence that the states emphasize the criteria, inter alia of economic depression, high rates of unemployment, and needs of disadvantaged students in their own distribution formulas and the criteria implicit in the formula the federal government itself uses to determine interstate allocations.

However, this assumed consistence of intent can readily be exaggerated, especially if we recognize that concentration of poverty imposes a special hardship on young people who are trying to acquire work skills. For example:

(a) As noted in Chapter I, a state may have a bi-modal distribution of income, with a million poor families, say, concentrated in two or three large cities but with an average statewide income equal approximately to national average. That state would receive no special help from the federal formula to deal with its large concentration of low-income families.

(b) In northern states like New York, Massachusetts, New Jersey, Pennsylvania, and Michigan, low income families in cities face relatively high costs, as compared with families in southern cities, for food, housing, energy and clothing. These price levels are recognized in the relatively high standards of welfare provisions in those northern states. Yet the Orshansky index, by which concentration of poverty is measured, takes no account of differences among the states in cost of living. Hence, even if the data show that federal vocational funds are distributed in favor of states, such as Mississippi and Alabama, with high reported levels of concentration of child poverty, we can hardly be sure that we are taking reasonable account of the economic distress that exists in New York, Newark, Detroit and Chicago.

One additional point should be made. The existing federal formula pays no heed to inter-state differences in necessary costs of vocational education, beyond taking account of the size of the working age population. Per student costs surely vary from state to state, reflecting differences in prices of educational inputs, most notably differences in level of teachers' salaries.

Some Empirical Results of the Federal Vocational Education Formula.

We now turn to the data to see how much money the federal vocational education formula allocates to each of the 50 states. The first thing to note is that all states must receive some federal vocational money. This reflects political reality. Even recognizing (a) that some states are quite rich enough to run good vocational programs without federal funds, (b) that the federal money is spread very thin, and (c) that more in the way of program improvement could be obtained if the federal money was concentrated in the states with the greatest propensity for innovation, all must receive.

As for equity, the symbolic presence of the federal government to help assure better access for the disadvantaged, the handicapped, etc., can only be felt in a state that accepts federal funds, and many members of special needs populations are to be found in the richest states. In this case, one may say that political reality serves the cause of equity.

Table III-1 shows federal vocational education dollars per capita and per student in the 50 states. The more meaningful figure is the former, because expenditures per student reflect not only the allocation process of the formula, but local tastes for vocational training. (In general, grant-in-aid formulas are judged on the basis of variables that are beyond the control of the receiving government; vocational enrollment is substantially within control

Table III-1
Federal Vocational Education Allocations, 1978-79, by States

	Federal Voc. Ed. Allocation per Capita		Federal Voc. Ed. Allocation per Student Enrolled in Voc. Ed.		% of Voc. Ed. Enrolled Who Are Disadv.	% of Voc. Ed. Enrolled Who Are Handicap.	"Estimated" Federal Voc. Ed. Allocation per Disadvantaged Student Enrolled(1)		"Estimated" Federal Voc. Ed. Allocation per Handicapped Student Enrolled(1)	
		RANK		RANK				RANK		RANK
New Mexico	3.50	1.0	76.8	7	12.94	2.14	107	38	323	13
South Carolina	3.45	2.0	45.74	34	7.09	1.85	116	36	222	30
Utah	3.44	3.5	50.64	27	4.66	1.95	195	21.5	234	28
North Dakota	3.44	3.5	61.98	16	8.66	1.11	128	35	500	7
South Dakota	3.43	5.0	91.62	4	6.34	.91	260	17	904	3
Vermont	3.40	6.0	91.70	3	9.85	3.00	167	26	275	23
Mississippi	3.35	7.0	60.41	19	6.07	2.35	179	24	231	29
Louisiana	3.34	8.0	58.77	22	30.54	2.21	34	49	239	27
Alabama	3.30	9.0	58.42	23	18.96	1.88	55	47	279	22
North Carolina	3.20	10.0	45.99	36	10.70	2.65	78	44	156	40.5
Kentucky	3.19	11.0	52.95	25	11.96	3.06	80	43	156	40.5
Maine	3.16	12.0	52.85	26	8.83	1.47	311	10	936	2
Georgia	3.14	13.0	41.04	38	4.23	1.04	174	25	355	11.5
Wyoming	3.13	14.5	64.39	14	3.29	1.09	352	7	529	6
Tennessee	3.13	14.5	59.49	20	8.63	2.18	124	34	246	25
Arkansas	3.12	16.0	60.95	18	17.23	3.80	288	14	48	49
Montana	3.11	17.0	12.13	51						
Idaho	3.10	18.0	76.88	6	4.66	1.20	296	11.5	576	4
West Virginia	3.01	19.0	67.84	12	9.01	3.12	135	32	195	35
Arizona	2.97	20.5	34.35	42	2.51	1.40	246	18	220	31
Oklahoma	2.97	20.5	59.01	21	3.84	2.16	276	15	245	26
Wisconsin	2.94	22.0	28.90	46	5.19	1.20	100	41	216	32.5

Table continued on next page

Table III-1

Federal Vocational Education Allocations, 1978-79, by States

	Federal Voc. Ed. Allocation per Capita		Federal Voc. Ed. Allocation per Student Enrolled in Voc. Ed.		% of Voc. Ed. Enrolled Who Are Disadv.	% of Voc. Ed. Enrolled Who Are Handicap.	"Estimated" Federal Voc. Ed. Allocation per Disadvantaged Student Enrolled(1)		"Estimated" Federal Voc. Ed. Allocation per Handicapped Student Enrolled(1)	
		RANK		RANK				RANK		RANK
Texas	2.91	23.5	47.17	31	4.42	1.01	192	23	418	9
Virginia	2.91	23.5	44.48	37	5.67	2.76	141	31	145	42
Missouri	2.90	25.0	68.13	11	3.87	4.41	316	10	139	43
Minnesota	2.89	26.0	55.79	24	4.18	2.81	240	19	178	37
Colorado	2.88	27.0	64.43	13	5.09	1.82	636	1	318	14
Indiana	2.86	28.0	98.65	1	3.56	2.87	498	2	308	16
Nebraska	2.85	29.0	61.53	17	7.35	1.87	150	29	296	18
New Hampshire	2.84	30.0	48.76	28	2.31	1.04	379	5	423	8
Rhode Island	2.82	31.0	73.28	8	12.83	4.95	103	39	133	45
Ohio	2.77	32.8	48.33	29	5.61	1.47	155	28	295	19
Iowa	2.75	33.0	64.12	15	16.11	2.66	72	45	216	32.5
Kansas	2.74	34.5	72.26	9	4.48	2.43	290	13	267	24
Oregon	2.74	34.5	34.06	43	5.60	1.46	109	37	210	34
Michigan	2.71	36.0	69.42	10	3.34	1.15	373	6		
Massachusetts	2.64	37.5	47.34	30	2.69	1.20	317	8	355	11.5
Pennsylvania	2.64	37.5	96.17	2	4.35	2.73	397	3	316	15
Washington	2.61	39.5	39.50	39	10.52	2.85	67	46	124	46
Florida	2.61	39.5	25.48	49	3.52	.80	130	33	287	20
Hawaii	2.60	42.0	46.33	33	32.79	4.34	296	11.5	96	47
Delaware	2.60	42.0	27.59	48	3.35	1.84	148	30	134	44
Alaska	2.60	42.0	27.91	47	21.32	.12	23	50	2116	1

Table continued on next page

Table III-1

Federal Vocational Education Allocations, 1978-79, by States

	Federal Voc. Ed. Allocation per Capita		Federal Voc. Ed. Allocation per Student Enrolled in Voc. Ed.		% of Voc. Ed. Enrolled Who Are	% of Voc. Ed. Enrolled Who Are	"Estimated" Federal Voc. Ed. Allocation per Disadvantaged Student Enrolled(1)		"Estimated" Federal Voc. Ed. Allocation per Handicapped Student Enrolled(1)	
		RANK		RANK				RANK		RANK
Maryland	2.59	44.0	45.61	35	4.93	2.14	166	26	192	36
Washington, D.C.	2.52	45.0	76.97	5	5.13	2.29	270	16	302	17
California	2.42	46.0	30.07	45	8.95	1.42	380	4	380	10
Nevada	2.40	47.0	46.89	32	4.33	2.50	195	21.5	169	39
New York	2.31	48.5	34.06	43	6.00	1.07	102	40	286	21
Illinois	2.31	48.5	35.31	40	15.76	3.77	40	48	84	48
Connecticut	2.25	50.0	34.77	41	6.56	1.83	95	42	170	38
New Jersey	2.20	51.0	23.77	50	1.80	.37	237	20	575	5

(1) 20% of the allocations of 120 and 130 funds were divided by the number of disadvantaged students enrolled in vocational education in each state, and 10% of the allocations were divided by the number of handicapped students.

of the states.) The startling things about the distribution of federal dollars per capita are two: (a) there is a sixty percent variation between the highest ranking state (New Mexico, $3.50) and the lowest (New Jersey, $2.20), a large range given the constraints embodied in the federal formula; and (b) the first half of the states by rank, i.e., the top twenty-five that received the largest grants, are almost all western and southern, leaving the industrial states of the north and east to receive relatively small allocations. Four of the most heavily industrialized states, New York, Illinois, Connecticut, and New Jersey are at the same time the states with the smallest federal allocations.

Federal vocational dollars per student enrolled run a greater range, i.e., from $99 in Indiana to $12 in Montana. Indiana's allocation is larger than Montana's by a factor of 8.25. There is no clear regional pattern in federal vocational dollars per student. Federal dollars per disadvantaged student show an even far greater range, i.e., from $636 in Colorado to $23 in Alaska; Colorado's figure exceeds Alaska's by a factor of 27.65. This latter kind of discrepancy appears to reflect a certain vagarity in the identification of disadvantaged students, or, more distressing, a very uneven performance in signing them up in vocational programs. The same two-fold judgment also applies to the identification or the enrolling of the handicapped. The pattern of performance in the states with regard to the handicapped is highly uneven and no particular geographic pattern is apparent.

Tables III-2, III-3, and III-4 should be read together. The left columns of III-2 and III-3 repeat the data on federal allocations per capita in the 50 states. In Table III-2, these allocations are related to personal income per capita, tax capacity of the states, tax effort, unemployment rate, and percent of children in poverty. Table III-3 relates federal vocational allocations per capita to state and local expenditures for vocational education in per capita terms. Table III-4 is a correlation matrix of the above named variables. Levels of significance are shown in parentheses.

From Table III-4, we see that federal allocations are strongly and significantly related to personal income per capita in a negative direction. Likewise, the federal distribution is related negatively (and significantly) to tax capacity (which, in turn, and as we would expect, is related positively to personal income per capita). Federal allocations are related negatively (and significantly at the .05 level) to tax effort. This is not a wholly expected finding -- to say, that is, that states that make a big tax effort get less federal money per capita. Federal dollars are related negatively and with high significance to the rate of unemployment. This says that if the federal government is trying to use its vocational dollars to combat unemployment, then it is sending those dollars to the wrong states.

Federal dollars are related positively to percent of children in poverty, but the reader may recall our earlier caveat about the blindness of the Orshansky index to living costs in northern metropolitan areas. Federal dollars are not related significantly to percent of handicapped or disadvantaged students in vocational edu-

Table III-2

State	Federal V.E. Allocations Per Capita	Rank	Personal Income Per Capita	Rank	Tax Capacity (U.S.=100)	Rank	Tax Effort (U.S.=100)	Rank	Unemployment Rate	Rank	% Children 5-17 in poverty	Rank
New Mexico	3.50	01.0	06505	44	093	34.5	089	31.0	7.8	14.0	26.0	02.0
So. Carolina	3.45	02.0	06242	49	077	49.0	088	32.5	7.2	20.0	23.9	03.0
Utah	3.44	03.5	06622	40	086	42.5	096	20.5	5.3	40.0	08.0	50.0
No. Dakota	3.44	03.5	07478	29	099	23.0	093	25.0	4.8	45.0	11.5	31.0
So. Dakota	3.43	05.0	06841	36	091	37.0	090	29.0	3.3	51.0	13.1	25.5
Vermont	3.40	06.0	06541	43	084	44.5	121	04.5	7.0	23.5	17.8	12.5
Mississippi	3.35	07.0	05736	51	070	51.0	095	22.5	7.4	17.0	32.6	01.0
Louisiana	3.34	08.0	06640	39	103	15.0	081	44.0	7.0	23.5	22.9	04.0
Alabama	3.30	09.0	06247	48	078	47.5	081	44.0	7.4	17.0	15.9	15.5
No. Carolina	3.20	10.0	06607	42	084	44.5	086	34.5	5.9	35.5	17.8	12.5
Kentucky	3.19	11.0	06615	41	090	38.5	084	38.0	4.7	46.0	21.4	06.5
Maine	3.16	12.0	06333	47	074	50.0	125	03.0	8.4	07.5	15.3	19.0
Georgia	3.14	13.0	06700	38	088	40.0	085	36.5	6.9	26.0	21.3	08.0
Wyoming	3.13	14.5	09096	03	147	02.0	082	41.0	3.6	50.0	08.6	46.5
Tennessee	3.13	14.5	06489	45	082	46.0	082	41.0	6.3	30.0	20.5	09.5
Arkansas	3.12	16.0	06183	50	078	47.5	079	47.0	6.6	27.0	21.4	06.5
Montana	3.11	17.0	07051	34	098	26.0	099	18.0	6.4	29.0	12.5	28.0
Idaho	3.10	18.0	06813	37	087	41.0	095	22.5	5.9	35.5	11.0	33.5
West Virginia	3.01	19.0	06456	46	090	38.5	090	29.0	7.1	21.0	18.9	11.0
Arizona	2.97	20.5	07374	31	093	34.5	110	10.0	8.2	10.5	16.8	14.0
Oklahoma	2.97	20.5	06951	35	102	18.5	072	50.5	5.0	43.0	14.6	22.0
Wisconsin	2.94	22.0	07597	26	093	34.5	116	07.0	4.9	44.0	09.4	43.0
Texas	2.91	23.5	07697	23	113	07.5	072	50.5	5.3	40.0	20.5	09.5
Virginia	2.91	23.5	07624	25	093	34.5	090	29.0	5.3	40.0	13.7	24.0
Missouri	2.90	25.0	07342	32	094	31.0	083	39.0	5.9	35.5	14.7	21.0
Minnesota	2.89	26.0	07847	19	098	26.0	115	08.0	5.1	42.0	09.1	45.0
Colorado	2.88	27.0	08001	17	104	13.0	096	20.5	6.2	31.5	10.7	35.5
Indiana	2.86	28.0	07696	24	098	26.0	082	41.0	5.7	38.0	09.6	41.5
Nebraska	2.85	29.0	07391	30	103	15.0	088	32.5	3.7	49.0	10.3	38.5
New Hampshire	2.84	30.0	07277	33	097	29.0	081	44.0	5.9	35.5	10.3	38.5
Rhode Island	2.82	31.0	07526	27	086	42.5	112	09.0	8.6	06.0	10.5	37.0
Ohio	2.77	32.8	07812	21	102	18.5	078	48.0	6.5	28.0	11.6	29.5
Iowa	2.75	33.0	07873	18	103	15.0	092	26.5	4.0	48.0	07.9	51.0

Table III-2
(Continued)

State	Federal V.E. Allocations Per Capita	Rank	Personal Income Per Capita	Rank	Tax Capacity (U.S.=100)	Rank	Tax Effort (U.S.=100)	Rank	Unemployment Rate	Rank	% Children 5-17 in poverty	Rank
Kansas	2.74	34.5	08001	16	105	12.0	085	36.5	4.1	47.0	08.6	46.5
Oregon	2.74	34.5	07839	20	098	26.0	100	16.0	7.4	17.0	08.4	48.5
Michigan	2.71	36.0	08442	11	101	21.0	101	14.5	8.2	10.5	11.3	32.0
Massachusetts	2.64	37.5	08063	15	094	31.0	130	02.0	8.1	13.0	09.3	44.0
Pennsylvania	2.64	37.5	07733	22	094	31.0	099	18.0	7.7	15.0	12.6	27.0
Washington	2.61	39.5	08450	10	100	22.0	101	14.5	8.8	05.0	10.0	40.0
Florida	2.61	39.5	07505	28	098	26.0	080	46.0	8.2	10.5	21.6	05.0
Hawaii	2.60	42.0	08380	12	109	11.0	120	06.0	7.3	19.0	09.6	41.5
Delaware	2.60	42.0	08604	09	122	04.0	086	34.5	8.4	07.5	10.4	37.0
Alaska	2.60	42.0	10851	01	143	03.0	109	11.5	9.4	02.5	15.9	15.5
Maryland	2.59	44.0	08306	13	102	18.5	109	11.5	6.1	33.0	10.7	35.5
Washington DC	2.52	45.0	10022	02	120	05.0	103	13.0	9.7	01.0	15.7	17.0
California	2.42	46.0	08850	06	110	10.0	121	04.5	8.2	10.5	13.8	23.0
Nevada	2.40	47.0	09032	04	151	01.0	077	49.0	7.0	23.5	11.0	33.5
New York	2.31	48.5	08267	14	102	18.5	153	01.0	9.1	04.0	13.1	25.5
Illinois	2.31	48.5	08745	08	114	06.0	092	26.5	6.2	31.5	15.1	20.0
Connecticut	2.25	50.0	08914	05	113	07.5	094	24.0	7.0	23.5	08.4	48.5
New Jersey	2.20	51.0	08818	07	111	09.0	097	18.0	9.4	02.5	11.6	29.5
Correlation Coefficient of Fed V.E. allocation per capita and variable in column	1.0000		-.7793 (P=.001)		-.5682 (P=.001)		-.2724 (P=.027)		-.3912 (P=.002)		.4646 (P=.001)	
Correlation Coefficient of rank of Fed V.E. allocation per capita & rank of variable in column	1.0000		-.84 (P=.001)		-.70 (P=.001)		-.26 (P=.034)		-.39 (P=.003)		.42 (P=.002)	

Table III-3

State	Federal V.E. Allocations Per Capita	Rank	Federal V.E. Expenditures Per Capita	Rank	State & Local V.E. Expenditures Per Capita	Rank	Federal V.E. Allocations to Federal V.E. Expenditures	State & Local V.E. Expenditures to Federal V.E. Expenditures
New Mexico	3.50	01.0	3.26	07.0	21.19	26	1.074	6.50
So. Carolina	3.45	02.0	3.43	05.0	44.45	02	1.006	12.96
Utah	3.44	03.5	3.81	01.0	30.48	10	.903	8.00
No. Dakota	3.44	03.5	3.21	10.0	22.63	22	1.072	7.05
So. Dakota	3.43	05.0	3.13	14.5	12.73	46	1.096	4.07
Vermont	3.40	06.0	3.09	16.0	19.82	27	1.100	6.41
Mississippi	3.35	07.0	3.44	04.0	18.65	35	.974	5.42
Louisiana	3.34	08.0	3.07	17.0	14.67	43	1.088	4.78
Alabama	3.30	09.0	3.01	18.0	16.64	37	1.096	5.53
No. Carolina	3.20	10.0	3.20	11.0	31.66	08	1.000	9.89
Kentucky	3.19	11.0	3.16	13.0	19.71	28	1.009	6.24
Maine	3.16	12.0	3.25	08.0	19.12	34	.972	5.88
Georgia	3.14	13.0	2.63	34.0	19.64	29	1.194	7.47
Wyoming	3.13	14.5	2.91	20.5	12.08	49	1.076	4.15
Tennessee	3.13	14.5	2.88	22.0	22.50	23	1.087	7.81
Arkansas	3.12	16.0	2.84	24.0	15.27	40	1.099	5.38
Montana	3.11	17.0	3.22	09.0	14.70	42	.966	4.57
Idaho	3.10	18.0	3.17	12.0	19.94	36	.978	6.29
W. Virginia	3.01	19.0	3.13	14.5	19.16	33	.962	6.12
Arizona	2.97	20.5	2.86	23.0	15.19	41	1.038	5.31
Oklahoma	2.97	20.5	2.92	19.0	29.38	13	1.017	10.06
Wisconsin	2.94	22.0	2.73	28.0	32.67	07	1.077	11.97
Texas	2.91	23.5	2.31	42.0	19.38	31	1.260	8.39
Virginia	2.91	23.5	2.66	31.5	25.36	18	1.094	9.53
Missouri	2.90	25.0	2.76	27.0	16.36	38	1.051	5.93
Minnesota	2.89	26.0	2.78	26.0	26.07	16	1.040	9.38
Colorado	2.88	27.0	2.91	20.5	28.90	17	.990	9.93
Indiana	2.86	28.0	2.59	37.0	12.56	48	1.104	4.85
Nebraska	2.85	29.0	2.67	29.5	18.88	44	1.067	7.07
New Hampshire	2.84	30.0	2.65	33.0	12.64	47	1.072	4.77
Rhode Island	2.82	31.0	2.67	29.5	27.80	15	1.056	10.41
Ohio	2.77	32.8	2.61	36.0	29.98	12	1.061	11.49
Iowa	2.75	33.0	2.66	31.5	21.72	25	1.034	8.17
Kansas	2.74	34.5	2.27	43.0	16.09	39	1.207	7.09

Table III-3
(Continued)

State	Federal V.E. Allocations Per Capita	Rank	Federal V.E. Expenditures Per Capita	Rank	State & Local V.E. Expenditures Per Capita	Rank	Federal V.E. Allocations to Federal V.E. Expenditures	State & Local V.E. Expenditures to Federal V.E. Expenditures
Oregon	2.74	34.5	2.83	25.0	8.74	50	.968	3.09
Michigan	2.71	36.0	1.66	50.0	24.36	20	1.633	14.67
Massachusetts	2.64	37.5	2.22	45.5	42.32	03	1.189	19.06
Pennsylvania	2.64	37.5	2.04	48.0	22.85	21	1.294	11.20
Washington	2.61	39.5	3.39	06.0	39.79	04	.770	11.73
Florida	2.61	39.5	2.10	47.0	45.16	01	1.243	21.50
Hawaii	2.60	42.0	2.43	40.0	13.68	45	1.070	5.63
Delaware	2.60	42.0	2.54	38.0	36.14	06	1.024	14.23
Alaska	2.60	42.0	3.52	02.5	27.99	14	.739	7.95
Maryland	2.59	44.0	3.52	02.5	25.23	19	.736	7.17
Washington DC	2.52	45.0	2.36	41.0	6.23	51	1.068	2.64
California	2.42	46.0	2.61	35.0	38.77	05	.927	14.85
Nevada	2.40	47.0	2.47	39.0	19.60	30	.972	7.94
New York	2.31	48.5	2.00	49.0	30.59	09	1.155	15.30
Illinois	2.31	48.5	1.42	51.0	30.43	11	1.627	21.43
Connecticut	2.25	50.0	2.26	44.0	19.29	32	.996	8.54
New Jersey	2.20	51.0	2.22	45.5	22.12	24	.991	9.96

Sources for Tables III-2 and III-3:

1. From Conditions of Vocational Education, 1980, federal allocations and expenditures, state and local expenditures (except for Washington State figure -- which was taken from that state's own financial report), number of handicapped and disadvantaged students.

2. From Statistical Abstract, 1980, personal income, population, unemployment, percentages of children in poverty.

3. From "Tax Wealth in Fifty States," tax capacity and tax effort.

Table III-4
Correlation Coefficients for Interstate Variables
50 States

	Federal V.E. Allocations Per Capita	Personal Income Per Capita	Tax Capacity	Tax Effort	Unemployment Rate	Concentration of Poverty	Percent Handicapped (in Voc Ed)	Percent Disadvantaged (in Voc Ed)	State & Local V.E. Expenditures Per Capita
Federal V.E. Allocations Per Capita	1.00	-.78 (.001)	-.57 (.001)	-.27 (.027)	-.39 (.002)	.46 (.001)	.03 (.421)	.13 (.180)	-.19 (.193)
Personal Income Per Capita			.85 (.001)	.24 (.044)	.28 (.021)	-.52 (.001)	-.20 (.085	-.05 (.370)	.08 (.29)
Tax Capacity				-.08 (.295)	.04 (.389)	-.39 (.002)	-.22 (.067)	-.004 (.489)	-.06 (.338)
Tax Effort					.43 (.001)	-.24 (.042)	-.05 (.355)	.06 (.348)	.21 (.070)
Unemployment Rate						.21 (.074)	-.08 (.284)	.10 (.234)	.24 (.047)
Concentration of Poverty							.04 (.388)	.21 (.069)	.01 (.470)
Percent Handicapped (in Voc Ed)								.37 (.004)	-.14 (.173)
Percent Disadvantaged (in Voc Ed)									-.14 (.173)
State & local V.E. Expenditures Per Capita									

cation. Given the emphasis placed on serving target populations in the 1976 legislation, this is a disturbing finding. Federal dollars are negatively related to state and local expenditures per capita, but the level of significance is marginal.

What can we say in summary of the pattern of distribution afforded by the federal formula in vocational education? Clearly the formula does not work as an incentive grant. The distribution is related negatively to the tax effort of the states (highly significant) and negatively to state and local expenditures per capita for vocational education (marginally significant). Furthermore, and recalling the emphasis placed on giving occupational training to the disadvantaged and handicapped in the 1976 Amendments, it is especially instructive to note that there is no significant relationship between the pattern of funds distribution and the *enrollment* of disadvantaged students in vocational education nor between funds and the enrollment of handicapped students.

For example, South Dakota gets a relatively large amount of federal funds per capita ($3.43) and has less than five percent of its children living in families that receive public assistance. Washington, D.C. is provided a much smaller amount of federal funds per capita ($2.52) but has 27 percent of its resident children living in families on welfare. (See "Proportion of Special Needs Students by States," *Statistical Highlight*, Washington, D.C., *National Center for Educational Statistics*, December, 1980., p. 1.)

On the other hand, the formula gives favorable treatment to states that rank low in average per capita income, that have a high concentration of children in poverty (as measured), and that rank low in tax capacity. In terms of these factors, the formula has a strong bias toward equalization of resources. At the same time, the formula gives favorable treatment to states that have low rates of unemployment. As Table III-4 reveals, this paradox is easily explained: income per capita and unemployment rate are positively correlated to a statistically significant degree. The prevailing economic structure of the states lays a choice before the federal government. It can use its vocational education grants to promote economic growth in the low income states of this country. These are mainly to be found in the south and the southwest and they are now in a rapid state of industrialization. This, let us say, is the main direction of the present policy. Or the federal government can use its grants to reduce rates of unemployment in states where those rates are high by national standards. These are states that were industrialized long ago and now contain large urban concentrations of minority people. They are chiefly to be found in the northeast and northcentral parts of the country. As long as the federal government is committed to giving all the states something out of a rather small total appropriation, it is hard to see how both of these objectives can be served well.

CHAPTER IV

DISTRIBUTION PROCEDURES USED BY STATES TO ALLOCATE VEA FUNDS TO ELIGIBLE RECIPIENTS

This chapter on intrastate distributions follows the general form of Chapter III, which dealt with the distribution of VEA funds from the Federal government to the states. We offer first an analysis of the distributional procedures, now called formulas, that states use to pay VEA money over to local educational agencies (LEAs) and other eligible recipients (OERs). Then, in Chapter V, we examine the results of that distribution process in a sample of the states, taking into account the characteristics (size, wealth, income level, unemployment rate, etc.) of the various LEAs and OERs in those sample states.

The reader will quickly note that this chapter is far longer than Chapter III and the material in it much more detailed. This reflects in part the fact that within-state distributional patterns are much more complicated to deal with than the national distributions, but also the fact that the present topic stands as a major component of PONVER's contract. Actually, we were charged to create a taxonomy of formulas for the whole fifty states and to delineate the nature of each state's VEA formula within that taxonomy. Obviously, this summary report has no place for the detailed analysis of fifty state formulas.*

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*See C.S. Benson, E.G. Hoachlander, and R.S. Polster, Analysis of Distribution Procedures Used by States to Distribute Federal Funds for Vocational Education, Berkeley: Project on National Vocational Education Resources, School of Education, University of California, a report prepared for the National Institute of Education, 1980.

THE BACKGROUND OF FORMULA DEVELOPMENT

Probably no other aspect of the 1976 Amendemnts has generated more controversy, confusion, and frustration than the general issue of how states are to distribute funds to eligible recipients. Almost four years after passage of the 1976 Amendments, clear federal guidelines have not yet been established, and every state operates under great uncertainty as to whether it is complying with federal law. Regulations and guidelines issued to date have been amgibuous, confused, and contradictory. Procedures approved one year have been disapproved the next only to be approved again.

In this first section of this chapter we offer a general overview, concentrating on the specific provisions affecting the distribution of funds and identifying the issues that have impeded the development of workable procedures. These issues include 1) the meaning of "non-uniform" distribution among applicants, 2) the definition of distributional criteria, 3) the determination of distribution mechanisms and 4) the interpretation of the setaside provisions. In the next section. we analyse the actual procedures that the states have adopted.

By far, the bulk of this chapter concentrates on individual state systems and the strengths and weaknesses of various approaches that states have adopted for distributing federal funds. We are very critical. We have found no state that has designed procedures free of mathematical errors, arbitrary judgments, questionable interpretations of federal law and regulations, and inaccurate or inappropriate data. Nevertheless, we find it difficult to fault individual states. As will become apparent in the sections that follow, federal leadership has been woefully inadequate. The Office of Vocational and Adult Education (OVAE) has been unable to define unambiguous criteria and to design clear procedures for distributing federal funds. A partial explanation for this failure is apparently inadequate expertise for analyzing and designing school finance systems. However, greater technical proficiency at OVAE cannot remove much of the ambiguity. Clearer directions are needed from Congress. Present legislation is irresolvably vague on several important issues. Moreover, the legislation pursues too many objectives with too few instruments and too little attention to which objectives have priority. Until such problems are resolved at the federal level, state responses are likely to continue to reflect a chaotic state of disarray.

I. Achieving "Non-Uniform" Distributions

A major change of the 1976 Amendments was the provision of more explicit requirements for distributing funds. The 1968 Amendments had instructed states to give due consideration to the results of periodic evaluations, to the relative need for vocational education among different population subgroups, to the relative ability of school districts to provide resources, and to the excess costs of vocational programs. Yet, such provisions had proven inadequate. For example, the House Committee on Education and Labor reported:

> From our oversight of the [vocational education] Program during the last two years, we have found that these requirements are too general in nature to carry out the intention of Congress which was to provide additional resources to those school districts and agencies most in need of those resources to provide programs (House of Representatives, Report, No. 941085, May 4, 1976, p. 33).

Similarly, the Senate Committee on Labor and Public welfare noted:

> Existing law prohibits the allocation of funds among eligible applicants in a manner which fails to take into account the statutory criteria for allocation, such as the matching of local expenditures at a uniform percentage ratio. The purpose of such a provision was to require State boards to take into account the relative needs of applicants for Federal funds, and their relative ability to match such funds, in relation to other applicants within the State. Despite this provision, a number of states allocate funds among school districts on the basis of a flat formula, without taking relative need or ability to pay into account (Senate, Report, No. 94882, May 14, 1976, p. 71).

In the 1976 Amendments, the Congress clearly states that henceforth uniform distribution of federal funds to eligible recipients is unacceptable:

> . . . the State will not allocate such funds among eligible recipients within the State on the basis of per capita enroll ment or through matching of local expenditures on a uniform percentage basis (P.L. 94482, Sec. 106(a)(5)(B)(ii)).

Instead, state administrations are to direct federal funds to local agencies most in need of additional resources. "Need," in this instance, takes several forms. Thus, the Congress directs

> that the State shall, in considering the approval of such applications [for funds], give priority to those applicants which
> (i) are located in economically depressed areas and areas with high rates of unemployment, and are unable to provide the resources necessary to meet the vocational education needs of those areas without Federal assistance, and
> (ii) propose programs which are new to the area to be served and which are designed to meet new and emerging manpower needs and job opportunities in the area, and, where relevant, in the State and the Nation . . . (P.L. 94482, Sec. 106(a)(5)(A)).

While more explicit than the 1968 Amendments, these directions remain ambiguous. What constitutes an "economically depressed" area or a "high" rate of unemployment is not defined, and liberal interpretations have enabled some states to label almost all recipients "economically depressed." For example, of 62 counties in New York, all but two --

Dutchess and Tomkins are defined by the 1979 Annual Plan as economically depressed.

Further weakening the ability of the two criteria to target funds is the lack of any strong correlation between location in an economically depressed area and location in an area with "new and emerging manpower needs." Indeed, one might expect the second to be more characteristic of economically vigorous communities with high rates of growth and low unemployment. Thus, one criterion may well be offsetting the other, effectively permitting uniform distribution of federal funds despite specific criteria for targeting. Such a possibility needs to be verified by empirical analysis, but even without hard data, it is easy to see how the two criteria could be used to cast a large net that would include most, if not all, localities.

Perhaps anticipating such difficulties, the Congress specified further criteria:

> . . . the State shall, in determining the amount of funds available under this Act which shall be made available to those applicants approved for funding, base such distribution on economic, social and demographic factors relating to the need for vocational education among various populations and the various areas of the State, except that
>
> (i) the State will use as the two most important factors in determining this distribution (I) in the case of local educational agencies, the relative financial ability of such agencies to provide the resources necessary to meet the need for vocational education in the areas they service and the relative number or concentration of lowincome families or individuals within such agencies, and (II) in the case of other eligible recipients, the relative financial ability of such recipients to provide the resources to initiate or maintain vocational education programs to meet the needs of their students and the relative number or concentration of students whom they serve whose education imposes higher than average costs, such as handicapped students, students from lowincome families, and students from families in which English is not the dominant language (P.L. 94482, Sec. 106(6)(5)(B)(i)).

Here again, the language is much more specific than previous law, but an important question remains unanswered. Are these criteria to be applied after a local agency has been identified as eligible by the previous two criteria location in an economically depressed area or proposing programs for new and emerging manpower needs? Or, are they to be applied independently with additional money going to localities with low financial ability regardless of need based on other criteria? Does the law require an approval process by which eligibility is first based on high unemployment *and* low financial ability, or does it merely require a process by which either high unemployment *or* low financial ability are sufficient for eligibility? A process in which eligibility is determined by meeting any *one* of several criteria will distribute funds more broadly and uniformly than a process requiring that *all* criteria be satisfied. Indeed, the former process is likely to lead to an outcome in which all applicants receive some funds, and depending on the weights assigned to each criterion, capita distribution.

Is it legal to fund all applicants in this way? OVAE has said yes. In the March 1980 draft of its Policy Manual for Federal Vocational Education Fund Distribution, the Office states:

> States may distribute Federal VEA funds to *all* applicants. Although P.L. 94482 describes separate approval/selection and funding stages, there is nothing in the Law or Regulations to prohibit a State from funding all applicants. Where all applicants are funded, States can use a combined prioritizing and funding process, as long as the two most important factors (1) relative financial ability and (2) low-income families (for LEAs) or (2) high cost students (for other eligible recipients) individually receive the greatest weight in the process. (BOAE Information Manual for Federal Vocational Education State Grant Fund Distribution Procedures, March 1980, p. 6).

OVAE also gives states the option of using a twostage process of approval and funding but does not require it.

Despite BOAE's assertion that it is legal to distribute funds to all applicants, much doubt remains. Reporting on the 1976 legislation to amend the Vocational Education Act, the Senate Committee on Labor and Public Welfare states that the purpose of these criteria are to help States make "hard choices" about whom to fund, implying that only the neediest applicants are to receive funds:

> The Committee hopes that the specific provisions for the eligible recipient applications will provide the State board with the necessary information to make hard choices among competing applications for scarce Federal funds.

However, even this statement is ambiguous because the report continues:

> . . . Of course, successful ongoing programs should continue to receive assistance. However, with the development of new vocational programs competing for limited dollars, State boards may have to decide to fund new and innovative programs, allowing State and local funds to pick up the costs of some operational programs.

Short of more explicit legislation, the question of whether all applicants may receive some federal funds cannot be answered. A clear response has import policy implications, affecting not only what types of distribution procedures are appropriate but also the effectiveness of Congress' efforts to target resources where needs are greatest.

II. Criteria Affecting Funds Distribution

While it is unclear whether Congress intended all applicants to receive federal funds, there is no doubt that it intended some to receive more than others. Applicants with large populations of handicapped and disadvantaged students, poor areas with high unemployment and difficulties in providing vocational education programs, and areas with new and emerging training opportunities are all to receive priority in distributing federal funds to eligible recipients. However, the legislation offers little guidance on operational definitions of these objectives or the weight each is to receive. Each criterion deserves some discussion.

A. Location in an Economically Depressed Area. States have enjoyed much discretion in defining economically depressed areas. Many have employed the criteria used to designate areas under the Public Works and Economic Development Act, criteria so broad that most areas of the state qualify. In its proposed policy manual on funds distribution, OVAE does not explicitly outlaw this practice and instructs states to define economically depressed areas in Annual Program Plans. Henceforth, states must include in their definitions measures of unemployment rates and inability to provide resources for vocational education programs. Thus, OVAE encourages states to abandon dichotomous variables and to employ continuous variables that will force states to recognize that some areas are more economically depressed than others. Implicit in these directions is the requirement that, among localities designated as economically depressed, states allocate greater resources to those with greater needs.

However, such a requirement is never explicitly stated, and the manual subsequently waffles and begs the question. It instructs states to adopt one of two approaches in approving applications. First, a state may fund only those applicants in economically depressed areas by ranking them according to need and using a "cutoff mark" to determine eligibility. The cut-off point is never defined, nor are states given any guidance as to how to determine it. Second, states may fund all applicants and include depressed areas as a "weighted" factor in the distribution formula. OVAE provides no instructions as to how this is to be done or what "weighted" means in operational terms.

B. New Programs. Similar ambiguities plague the definition of programs designed to meet new and emerging manpower needs. The intent of the requirement seems clear -- namely to discourage localities from continuing to operate outdated or unnecessary training programs and to anticipate labor market needs that might cause shortages in the absence of adequate numbers of trained workers. Such an interpretation is consistent with other sections of the Act that stress program planning based on careful assessment of current and future needs for particular job skills (see, for example, Sec. 107(b)). Unfortunately, the emphasis on "new" programs and OVAE's literal interpretation of the word creates incentives that potentially contradict the broader aim for sound planning that matches training to expected labor market conditions. Thus, too literal an interpretation would declare ineligible a locality that sought to expand an existing program to meet emerging new demands for workers with those particular skills. By OVAE's definition, and indeed the language of the legislation itself, such a program only qualifies if it is "new to the area." Similarly, an existing program that is radically reorganized for example, redesigned to use updated new equipment and curriculum at substantial additional costs -- would not qualify for federal funding under a strict interpretation of the "new program" criterion.

Such outcomes are clearly inconsistent with concerns expressed elsewhere in the legislation. The Act begins with a declaration of purpose that leaves no doubt that Federal funds are intended, among other aims, to help states extend and improve existing programs, but the later emphasis on new programs as one of only two criteria for approving applications, discourages sensible planning. Instead, such heavy priority on "newness" may encourage potential recipients not only to rush into poorly developed programs for the sake of doing something new, but also to design elaborate new disguises for old programs that do not change at all.

The extent of such practices requires empirical analysis. Regardless of empirical findings, however, the emphasis on new programs is misplaced. Not only is it a poor criterion for encouraging localities to use existing resources efficiently but also it unfairly rewards localities with the most limited offerings. It is much more difficult for a large recipient with a widely varied program to develop new ones, though it may be important to expand existing ones. As written, the legislation is unnecessarily inflexible on this point.

C. Relative Financial Ability. One of the "two most important" factors affecting funds distribution, relative financial ability has two possible meanings, according to the VEA Regulations. First, it may be defined as local property wealth per capita, a measure similar to those used in school finance formulas seeking to neutralize the influence of tax base disparities on spending for education. Alternatively, it may be defined as total local tax effort, per capita local tax revenues divided by local per capita income. This latter measure, one of the criteria affecting allocations of federal revenue sharing, recognizes that property taxes are ultimately paid out of current income. Measuring the burden relative to income thus provides a better indicator of ability to pay than a measure of assessed value per capita. Assessed value per capita ignores not only revenues actually generated, but also variations in burden relative to local differences in the distribution of income.

Despite the superiority of the tax effort measure, OVAE urges states to use property wealth per capita to determine relative financial ability. The Office argues that a measure of total tax effort is too difficult to implement. Two major problems impede implementation. First, in many states, the jurisdiction responsible for education is not geographically coterminous with other jurisdictions responsible for other services. Consequently, aggregates of tax revenues for all local services are very difficult to calculate. Second, in many states, there are no current, accurate measures of local income for school districts. Typically, states levying income taxes can calculate distributions of income for counties and municipalities, but unless school district boundaries coincide with these jurisdictions, distributions for school districts cannot be determined. A few states have solved this problem by requiring taxpayers to include on their tax returns the name of the school district in which they reside. Others have developed trict boundaries; the programs permit easy and reasonably accurate estimates of income distributions for school districts. In short, several states are capable of calculating per capita income for school districts, and OVAE could encourage, or indeed require, that these states use per capita income in measures of relative financial ability.

OVAE has prohibited states from employing assessed value per student, ADA or ADM, as a measure of relative financial ability. Such measures fail to recognize that age distributions vary greatly among jurisdictions. Consequently, districts with relatively few school age children may enjoy a fiscal advantage in providing educational services, but this advantage is offset by greater difficulties in financing other public services in greater demand by adults, especially the elderly. Further, measures employing ADA or ADM tend to penalize districts with large private school populations, high rates of absenteeism, and rapidly declining enrollments. Such places have relatively higher fixed costs for education. Thus, tax base per capita is a superior measure, more neutral with respect to demands for non-school services and variations in fixed costs.

Regardless that the use of a per capita measure is superior, the measure is difficult for many states to calculate accurately. Most states do not have data on the resident population of school districts. Such data are available from the decennial census, but they become quickly dated. Only where school districts are coterminous with municipalities or counties can states secure accurate counts of resident population. OVAE recognizes this difficulty and permits states that can substantiate their inability to secure population data to substitute assessed value per student. The vast majority do employ this proxy.

D. Low-Income Families. The second of the two "most important" factors determining funds distribution is the "relative number or concentration of low-income families or individuals within such agencies." The major unresolved question regarding this criterion is relative to what the number of low-income families relative to the total population of the LEA, or the number of low-income families relative to the total number of low-income families in the state? OVAE has opted for the former, a choice that can lead to some rather perverse outcomes unless variables are carefully adjusted for the size of the LEA. To see why, consider the extreme case of a state with only two districts of vastly different size. One has a population of 100,000, of whom 800 are low-income individuals. The second has a population of 1,000, of whom 800 are low-income. Thus, the concentration of low-income individuals relative to the population of the district is 20 percent and 80 percent, respectively. By OVAE's rule, funds are to be directed to the second district, despite the fact that over 85 percent of the state's population of low-income individuals resides in the first.

The critical question here is whether the criterion is intended to direct funds to individuals or geographic areas. OVAE's procedure directs funds to areas with the possibility that very sizable numbers of target populations will receive little special assistance. Further, on the very reasonable assumption that population heterogeneity increases with size, a procedure that measures proportions of target populations within LEAs inevitably favors small jurisdictions. There may be some justification for this practice. If it can be shown that high concentrations of target populations within LEAs produces higher costs per student, some adjustment is called for. However, if the problem is that target populations generally require more costly programs, regardless of where they reside, then distributing funds on the basis of numbers relative to the state totals would be more equitable and effective.

A second difficulty affecting the implementation of this criterion is the lack of data that are sufficiently disaggregated to target funds precisely. Where states maintain income data only at the county level, the number of low-income individuals within LEAs within each county can only be obtained by pro-rating county totals among districts. Typically, pro-rating is based on the distribution of the county's total population among LEAs. Thus, to the extent that target populations are not evenly distributed in relation to the total population, some LEAs are penalized while others are favored. As was noted above, several states have procedures for obtaining more accurate measures of school district income distributions and OVAE could be urging universal adoption of these procedures.

E. Above Average Costs. Many LEAs eligible for federal funds receive no local revenues and are wholly supported by state funds. Hence, conventional measures of relative financial ability are not applicable, and where states allocate equal amounts per student, the criterion has no relevance at all. However, in such instances, the law directs states to consider "the relative number or concentration of students whose education imposes higher than average costs, such as handicapped students, students from low-income families, and students from families in which English is not the dominant language." Here again, OVAE has interpreted "relative" to mean concentrations within institutions rather than the size of the LEA target population relative to the state total. The practice has the same problems as those discussed above.

Additionally, OVAE presumes that LEAs do in fact incur above average costs in educating these students. The Office instructs states to count students; it does not require evidence that such costs are incurred or that additional funds based on such counts are actually to be spent on students identified. The failure to insist on direct evidence of above-average costs may ignore important differences among LEAs. Costs are likely to vary substantially -- by factors of two or more -- among types of students and types of services offered. Simple population counts are crude measures at best; at worst, they signify nothing.

F. Weighting Criteria. Assuming these criteria could be clearly defined and accurately measured, the problem would remain as to how each should be weighted in determining the distribution of funds. On this point, the legislation is extremely vague. States are directed to "give priority to" or consider "most important" various factors, but these phrases have no operational meaning. Until Fall 1979, the regulations simply repeated the language of the law and provided no additional insight. The draft of OVAE's policy manual issued in March 1980, fails to offer any guidance other than to specify which factors must receive the "greatest" weight. Presumably, a formula giving weights of .26 to two variables, relative financial ability and number of low-income individuals, and weights of .24 to two others is legal for there is no specified minimum by which the weights of these factors must exceed those of others.

A more fundamental question is whether it is appropriate at all to try to solve a number of different objectives simultaneously through arbitrary weighting schemes. An alternative approach is to prioritize objectives and devote resources to realizing the first before proceeding to the second. Thus, Congress might specify that federal funds are to be used first to eliminate vocational education spending disparities produced by differences in relative financial ability. If resources remain after that objective is satisfied, they might then be applied to compensating for above average costs of educating special students. If some federal funds still remained, they might then be applied to supporting programs aimed at new labor market needs. Despite the relatively small proportion of vocational education dollars that federal funds represent, such prioritizing may not be far-fetched. Some states, after all, have already achieved substantial expenditure equalization through school finance reform, and in these states the criterion of relative financial ability has no meaning.

III. Distribution Mechanisms

Prior to the 1976 Amendments, states distributed funds to eligible recipients in a wide variety of ways. State plans rarely described the distribution procedures precisely, and it is practically impossible to reconstruct the distribution mechanisms actually used. However, generally one of two types of procedures was adopted. Funds were distributed either on the basis of applications for grants to support proposed projects or on the basis of a predetermined entitlement. Under the first, eligible recipients submitted a project proposal and budget which was reviewed by the state administration and approved, modified, or rejected. All those eligible did not necessarily receive funds, and state officials enjoyed substantial discretion in determining what projects would be approved. Under the second, state officials determined an entitlement for each eligible recipient, which then submitted an application against the funds. The entitlement might be based simply on a flat amount per student for each recipient or it might attempt, by mathematical formula or administrative adjustment, to vary entitlements among recipients depending on need or other criteria.

Although the 1976 Amendments explicitly forbade uniform distributions, the legislation did not preclude states from continuing to employ either of these approaches. Henceforth, states would be required to apply the various criteria discussed in the previous section to either the entitlement or project based distribution. The legislation nowhere specified how these criteria were to be applied, and indeed the regulations do little to clarify the type of mechanisms states are to employ. For the most part, the regulations issued in October 1977, merely repeated the language of the Act.

However, in Appendix B of the Regulations, a peculiar word appears:

> Question No. 1: To what part of the Act does the Section 106(a)(5) funding formula apply?
>
> Answer: The section 106(a)(5) funding formula must be applied to all Federal funds distributed under sections 120, 134, 140 and 150. (Federal Register, Vol. 42, No. 191, Monday, October 3, 1977, p. 53865, emphasis added)

"Formula" appears nowhere in the Act and is used only once in the main body of the Regulations -- referring to the computation of expenditures for persons with limited English-speaking ability (Federal Register, Vol. 42, No. 191, Monday, October 3, 1977, Article 104.313(c), p. 53841). Seemingly, while never explicitly stating the requirement, without providing a single example of how the computations were to be performed, without offering any guidance as to what variables were to be included and how they should be weighted, OVAE had intended states to employ a formula to distribute federal funds. Yet it is odd to relegate such a formidable requirement to one sentence in the appendix to forty-three pages of detailed regulations. How were states expected to implement the requirement for distributing funds by formula? The question has been at the center of four years of regulatory debate between OVAE and the state agencies overseeing the distribution of funds.

What precisely is meant by the term "formula"? Though the Regulations offer few hints, we take the term to mean a clearly delineated method -- usually though not necessarily mathematical -- for allocating funds. Its chief feature is that it makes explicit and replicable each step in the allocation process. Ideally, it should produce the same outcome regardless of who performs the required computations; the need for subjective judgment is minimized and its influence tempered. At the very least, an outsider ought to be able to follow and understand how a particular outcome was produced.

To employ a formula effectively and fairly, there are some additional criteria that it should strive to meet:

A. Definitional Clarity. Each of the variables employed in the formulas -- i.e., the criteria governing funds distribution -- must be clearly defined. The definition should apply uniformly among eligible recipients within each state, and perhaps among states as well. Each variable should strive to reflect or measure accurately the intended phenomenon.

B. Ease of Understanding. In one sense, a formula 'works" if it produces the outcome intended by the controlling legislation. Hence, one might argue that it is necessary only to understand the outcome rather than the procedures that produces it. However, often the intended outcome is not realized -- perhaps because objectives conflict or perhaps because mathematical or statistical errors have been made -- and it is important to be able easily to identify the source of the problem. More importantly, there is not always consensus on the legislative intent, and it is therefore useful to be able to understand how a particular formula reinforces one interpretation or another. Consequently, formulas should be designed to allow easy understanding by federal, state, and local officials, legislators, parents, teachers, and others concerned with operating educational programs.

C. Use of Current and Reliable Data. Often it is possible to define clear criteria for distribution, but data are not available that are sufficiently current and reliable. Lagged data that deviate significantly from current conditions will produce unwanted results. Some data, while reliable in the aggregate, are suspect when disaggregated or prorated. Data may be missing for some states or for some recipients within states, and bias in the pattern of missing data will bias distributions based on such variables.

D. Geographic Specificity. Related to problems of data currency and reliability is the problem that data may not be available in a form that permits effective targeting of funds. At what level is it necessary to distinguish eligibility among states, counties, LEAs, schools, classrooms, or individuals?

E. Stability. Also related to problems of data reliability and geographic specificity is the formula's sensitivity to small changes in the measures employed. High sensitivity may be desirable, although this will lead to large differences in allocations among recipients and over time. Large changes may impair recipients' ability to plan effectively; on the other hand, formulas insensitive to real differences among recipients defeat objectives to target funds.

F. Unintended Incentives. Even formulas that meet all of the above criteria can create unintended incentives and consequences that counteract the intended objectives of the formula. The formula may encourage recipients to report false or misleading data, to relabel students, or shuffle financial accounts.

Even when these criteria for good formula design are respected, a formula may not produce the intended result. There is nothing inherently fair about formulas. The most important decisions affecting a formula's outcome -- the choice of variables, the mathematical specification of the relationships among variables, the values given to coefficients or exponents -- are all external to the formula itself; they are policy decisions that must be made by administrators and legislators and therefore subject to political debate and conflict. From this broader perspective, formulas are not objective at all, despite their apparent quantitative precision. Indeed, by including and excluding different variables and by manipulating values assigned to different coefficients, it is probably possible to design a formula that would produce any outcome desired, while still meeting the criteria outlined above and those specified in legislation. A formula *per se* is no guarantee of fairer or more effective allocation.

Unfortunately, this point has been missed by OVAE, as well as others pressing for the adoption of formulas as the primary mechanism for distributing funds. Although formulas help to explain the steps followed by states to allocate funds, in the absence of unambiguous instructions about what variables to include and how they are to be prioritized or weighted, formulas are no more likely to produce desirable outcomes than any other method of distribution. In this sense, the concentration on developing different "models" of formulas may be misplaced; more fundamental issues must be resolved before these models have any real operational meaning.

IV. Setaside Provisions

The setaside requirements of the 1976 Amendments are another area of on-going confusion and debate. The legislation contains three primary setaside provisions. First, at least 10 percent of each state's basic grant is reserved to pay not more than 50 percent of the excess costs of vocational education programs for the handicapped. Second, at least 20 percent of each state's basic grant is to be used to cover no more than 50 percent of the excess costs of programs for the disadvantaged. Third, the Act reserves 15 percent of each state's basic grant for not more than 50 percent of the costs of vocational education for persons who have completed or left high school or who are unemployed or already in the labor market (the postsecondary setaside). Additionally, a portion of the disadvantaged setaside is reserved for persons with limited-English proficiency, the amount varying with their number as a proportion of each state's population aged fifteen to twentyfour, inclusive.

The original legislation did not specify that funds reserved for the handicapped and disadvantaged could be used to cover only the excess costs of programs and services. Following the publication of proposed regulations in April 1977, a letter to Commissioner of Education Boyer from Representatives Perkins and Quie and Senators Pell and Javits made it clear that the setasides were intended to help cover the costs of "special forms of assistance, over and above the regular program." The Congressmen argued that any other interpretation would not lead to an expansion of services for the handicapped and disadvantaged and might lead to a reduction. Consequently, subsequent regulations required that the setasides for the handicapped and disadvantaged be applied only to the additional costs of special programs, services and activities.

Much confusion remained, however, especially as to whether the principle of excess cost applied to both mainstreamed programs and separate specialized programs. Consequently, in March 1978, OVAE issued a further interpretation. First, the interpretation reiterated the emphasis of the Vocational Education Act on mainstreaming:

> The State shall use, to the maximum extent possible, the funds expended for handicapped and disadvantaged persons to enable these persons to participate in regular vocational education programs (Federal Register, Vol. 43, No. 59, Monday, March 22, 1978, p. 12357).

For students placed in regular programs, excess costs refer to expenditure per student for nonhandicapped or nondisadvantaged students in vocational education.

When it is necessary to place a student in a separate specialized program, the entire cost of this program may be counted as excess costs, provided the average statewide (state and local) expenditure per student equals or exceeds the average per student expenditure for non-handicapped or non-disadvantaged students. Unfortunately, this interpretation creates a powerful incentive to isolate students rather than mainstream. Consider the following hypothetical example. Suppose a state spends $1,000 per student for non-handicapped students. The state has 1,000 handicapped students in vocational education and 10 percent of its basic grant amounts to $300,000, or $300 per handicapped student. If the state mainstreams these students, it must spend $1,600 per student, including an additional $300,000 of state-local expenditures to match the federal setasides dollar for dollar. However, if the state elects to place all students in specialized facilities, it need spend only $1,300 per student. In this case, average statewide state and local expenditure is the required $1,000 per student, $300 of which can be counted as the 50 percent match for the $300 per student of federal funds. The state need not spend the additional $300,000 required if students are mainstreamed. Consequently, the larger the setaside, the greater is the incentive to isolate students in special programs rather than mainstream them as the legislation would prefer.

The excess cost provision has made it difficult for some states to match federal setaside funds, and a few have threatened to return funds to OVAE. It is easy to see why they are experiencing difficulty. In effect, the operation of the excess cost provision creates a perverse incentive structure. On the one hand, spending small amounts per student in setaside dollars forces states to match at unusually high total matching ratios. Spending larger amounts decreases total matching ratios but forces states to raise substantial sums of new dollars. For example, assume a state spends an average of $1,000 per student for vocational education. Assume further that the federal setaside amounts to $50 per handicapped student in vocational education. For a mainstreamed student, the state must put up an additional $50, bringing the state-local total to $1,050, or a total matching ratio of 21:1. As the per student setaside increases, say to $300 in our previous example, this ratio declines greatly but states have substantially more difficulty generating additional funds.

In short, the excess cost provision is a clumsy mechanism for targeting funds. It is insensitive to existing levels of state spending and matching ratios for target groups and creates strong disincentives to use the money at all. Attempting to respond to the problem, Congress amended the Vocational Education Act in 1978 to allow states to exceed the 50 percent limit on the federal share for eligible recipients "financially unable" to provide programs for target groups. However, the amendment merely perpetuates the basic shortcomings of the excess cost notion and creates additional problems as to how "financially unable" recipients are to be defined.

A simpler and more effective approach might be to reserve setasides for special purposes -- services, programs, and activities -- but drop the matching requirements altogether. To avoid supplanting state-local funds with federal funds--the major concern of the Congress in insisting on the excess cost interpretation -- states could be required to maintain existing levels of support (on a per student basis adjusted for inflation), as well as document that state-local average expenditures per student for target groups equaled or exceeded average expenditures per student for non-handicapped and non-disadvantaged students. Such an approach would be consistent both with efforts to encourage mainstreaming and with Congressional objectives to provide necessary special services that facilitate participation in vocational education.

Summary

While by no means an exhaustive treatment of the ambiguities and problems complicating implementation of the 1976 Amendments, the discussion thus far serves to highlight some of the major issues. Important questions remain to be answered by Congress before one can reasonably expect states to adopt clear distribution procedures that respond effectively to the aims of the Congress:

1. Can federal funds be distributed to all LEAs and institutions, or must monies be directed first to those most in need on the basis of ability to pay and other criteria outlined in the legislation?

2. If universal distribution is permitted, what is the operational meaning of the "priority" assigned to the various factors affecting distribution?

3. If universal distribution is not permitted, is eligibility determined by satisfying only one of the several factors or must all be satisfied?

4. Are states permitted to use dichotomous variables e.g., location in an economically depressed area or operating a new program to determine

eligibility or must they employ continuous measures of these characteristics that distinguish among different levels of need? How should such measures be defined?

5. Where data, such as measures of lowincome families, are not currently available at the relevant level of geographic specificity, to what extent will proration or the use of proxies be permitted? Will states be required to collect such data? by what deadlines?

6. Does Congress intend to direct funds to needy individuals or needy areas? If areas, what types of distribution methods should states employ to avoid unintended concentration of all resources in a few small jurisdictions?

7. Is the presence of target populations sufficient evidence that recipients incur above average costs for certain students or must such costs be documented?

8. Should such objectives as overcoming the disadvantages of low relative financial ability or high concentrations of low-income families be prioritized and addressed sequentially, or should states seek to address all simultaneously?

9. If objectives are to be addressed simultaneously, how is each to be weighted?

10. Did Congress intend states to adopt a mathematically based formula to allocate funds, and if so, to what parts of the Act does such a formula apply? How much discretion are states to have in formula design and application?

11. If a formula is to be employed, how will the basic decisions be made regarding what variables to include and how to weight them?

12. Does the matching requirement for excess costs lead to the result intended by Congress? Would full federal funding of excess costs be more likely to realize Congressional intent, while greatly simplifying compliance and eliminating perverse incentives?

These are but a few of the unanswered questions. In light of such uncertainty, how have states responded? What procedures for distributing funds have actually been adopted? To that subject we now turn.

STATE DISTRIBUTION FORMULAS

Although never explicitly required by the 1976 Amendments, the hallmark of the new legislation has become the funds distribution formula. As set forth in the Regulations, distribution formulas are to govern the allocation of funds distributed under Sections 120, 134, 140, and 150. In this section, we analyze the types of formulas states have adopted. By way of background it is helpful to begin with a general look at intergovernmental fiscal relations in education, including the major factors affecting funds distribution and the general types of allocation formulas that have been developed.

I. Some General Concerns in Education Finance

During the past 15 years or so, a great deal of attention has been paid to improving the ways by which states distribute money for education to local school districts and institutions. Generally, these efforts have had two objectives, first to improve the distribution of state money with respect to local differences in costs and second to improve the distribution with respect to local differences in fiscal capacity to meet those costs. Thus, the general aim of school finance reform has been to design distribution systems that provide larger amounts of state aid to local recipients that fact higher costs in providing a given level of education or that possess less capacity to finance a given level of spending from local sources of revenue.

With regard to costs, the task for state government has been to distinguish between differences in expenditure that are attributable to cost differences and those which are attributable simply to differences in local preferences, toward either extravagance or parsimony. As a rule, states have considered two types of cost differences acceptable for compensating aid, costs attributable to differences among students and those attributable to differences among districts or institutions.

A. Student Characteristics. Some students, such as the handicapped, require special and costly services. Districts with higher than average proportions of handicapped students have higher than average costs, other things equal. The argument has been extended to disadvantaged, to bilingual students, and to gifted students. An unresolved issue is the extent to which student preferences should be recognized as establishing differences in necessary costs. If, for example, students in a given district seek to enroll themselves in disproportionate numbers in expensive courses and programs (expensive on account, say, of the requirements for specialized teaching skills or capital equipment), should the state on that account provide the district with an extra amount of funds, or should the local authority be held responsible either to find the extra money or ration student places in the favored programs?

B. District or College Cost Characteristics. It may require more dollars to provide a certain amount of instruction to students in some districts than in others. Sparsity of student population increases transportation costs and makes realizing scale economies difficult. Districts located in extremely cold or extremely hot climates face higher energy costs than do districts in temperate places. Central city districts often have higher costs for building maintenance because of the age of the structure and because of vandalism. These cost differences so far mentioned are related primarily to the physical aspects of the local authority.

Additionally, there is increasing interest in cost or price differences related to the market power or position of districts. It costs some districts more money to obtain services of teachers of given competence than others. In general, older industrial cities are in a weaker market position to hire teachers than middle class suburbs, teacher quality held constant. In measuring these price differences, one must separate the effects of local preferences toward hiring teachers of given types and toward having large or small classes -- policies that are within the control of at least some districts from conditions, such as the relative attractiveness of the district's students to teachers, that are beyond the capacity of the district to change. Only the latter conditions are appropriate to recognize in preparing an educational price index for a set of local authorities. Sophisticated formulas now in use in education take explicit account of all of the above differences in necessary expenditures. Lacking a well defined production function in education, we do not yet have the capacity to make precise estimates of true differences in costs, but we can at least make approximate estimates of the main sources of differentiated need.

To recount, the first objective in drawing up a well-functioning set of intergovernmental fiscal arrangements is to recognize interdistrict differences in necessary expenditures. The second objective is to take proper account of differences in local fiscal capacity. This second aim assumes, of course, that the grant, or government, expects the local authority to meet part (in some cases all) of the previously defined necessary expenditures from its own taxable sources. It is not required that things work this way. There are respectable arguments in education to the point that services should be fully paid for by federal and state governments. Education in Hawaii is fully funded by the state, and New Mexico, Florida, and Washington are states that come close to this condition. Because individual local educational authorities have lost virtually all power to set local tax rates and to determine the level of expenditures per student, it is reasonable to say that the educational system of California is financed fully by the state and federal governments. Nevertheless, local contribution is still regarded as an important source of revenue in most states. Accordingly, state governments try to equalize local taxable capacity by making bigger grants, other things equal, to local authority that are below average in local tax base per capita or per student and by making relatively smaller contributions to authorities that are rich in taxable resources.

However, varying state and federal grants inversely with taxable resources per student is no guarantee that these funds are properly distributed. Local taxes are levied mainly on real property, and at first blush, this seems a sufficient measure of local taxable resources. However, this measure ignores the possible significance of interdistrict differences in average household income or, alternatively, the proportion of families in the district below poverty level of income. Take two districts, A and B, and let them both have equally high assessed valuation per student. Let A be population by upper income people and let B be inhabited by lower income. By the fact that valuations are equal per student, we can logically assume that B has a substantial amount of industrial or commercial property, i.e., non-residential property per student. B can "export" part of its local tax burden and the tax payment per household in B may be rather low. Yet, the local tax borne by local families may be greater as a proportion of household income in B than in A.

States have responded to this problem in two main ways. The more precise adjustment is to offer income-specific property tax relief to low income families. The second is to adjust the actual assessed taxable values in the districts by an index based on district average household income figures. In the example above, district would have its total assessed valuation adjusted downward and A's would be raised. This action would serve to increase the entitlement of B to state aid and to reduce that of A.

A second problem in the measurement of local fiscal resources is summarized by the phrase, "municipal overburden." Other local services, such as fire, police, streets, libraries, health, and (sometimes) welfare are paid for from the same local tax base as is education. In central cities, expenditures per capita for these non-school services may be so high that there is little effective taxing power left once these requirements are met. Since protective services, at least, have absolute priority over education, the schools of central cities may be inadequately funded even though the tax base per student appears to be reasonably high. To an increasing degree, state governments are introducing a correction to their aid formulas to deal with the problem of municipal overburden.

With these considerations in mind, what types of grantinaid formulas have states employed? There are five general models:

1) Flat Grants

Flat grants provide equal distributions per capita or per student. Because flat grants recognize neither differences in necessary expenditures nor differences in locally taxable resources, they are seldom used at present, and are explicitly forbidden for use in vocational education. Only for small programs in which student need is not thought to be different from one district to another have they a place.

2) Fixed-Unit Equalizing Grants

In educational circles, this arrangement is known as the foundation program plan, but the more neutral label is to be preferred. Under this system, the state guarantees a specified amount of funds per student, provided the district levies a minimum local tax. If the minimum local tax fails to raise the guaranteed amount per student, the state supplies the difference. For example, the state might guarantee $1,500 per student to all districts levying a local property tax of at least one percent of market value. A district with assessed value per student of $60,000 would raise only $600 from local sources; therefore, the state would supply an additional $900 per student. If the district chose to levy a higher rate, say 2 percent, it would still receive $900 from the state but would be able to spend an additional $600, or a total of $2,100 per student.

The general formula for Fixed-Unit Equalizing Grants is the following:

$$A_i = N_i u \quad r Y_i$$

where

A_i = state grant to the ith district

N_i = student count in ith district

u = state's guaranteed level of expenditure per student toward meeting the costs of the given service

Y_i = Assessed Value in the ith district

r = Computational tax rate

Thus, the first product on the right hand side stands for an estimate of necessary expenditures in the given district and the second product is an estimate of a fair local contribution. If r is set sufficiently low, then all districts can provide their students with the given service at no higher local tax rate than that required of the richest local authority. It is now common practice to adjust the value of u by the characteristics of students in a particular district and to adjust A_i by a cost of education index.

3) State-local Sharing Formulas (Reimbursement Rate)

With this type of formula, the state pledges to reimburse a certain percentage of expenditures determined by the local budget. The percentage, or ratio of state to local expenditures, varies depending on the relative financial ability of local districts. The percentage is relatively high in low wealth districts and relatively low in high wealth. In its pure form, the formula produces this result: any two districts that have the same expenditure per student also have the same local school tax rate -- and vice versa.

The general form of the formula is:

$$A_i \quad = \quad 1 \quad \frac{X^{y}i}{\bar{y}} \quad E_i$$

where

A_i = state grant to the ith district

X = arbitrary constant, $0 \quad x \quad 1$, representing approximately the statewide local share of the costs of the given service

y_i = assessed value per student in the ith district

$\bar{y}$ = state-wide average assessed value per student

E_i = total budget or total state-local budget in the ith district

There are many variations of the basic formula. Some modifications are adopted to stimulate low spending districts and to curb the extravagance of high spending. Other modifications eliminate high wealth districts from receiving any state aid at all; but when this is done, the result of equal expenditure-equal tax rate is not forthcoming. At first glance, this may seem paradoxical, but only until it is realized that A_i can take on negative values. In other words, this formula may dictate that high wealth districts turn over part of their local tax receipts to the state for redistribution to low wealth places. This is called recapture.

Differences in relative costs per student can be taken into account by directing separate sharing formulas toward programs that serve different categories of students. Alternatively, they can be recognized by assigning extra values or weights to high cost students and using a weighted student count to compute y_i. As before, differences in the educational price index can be dealt with by simply using the index to adjust A_i.

4) Levelling Up Formulas

Levelling up formulas proceed sequentially. State money is first directed to the poorest district, then when the poorest district is as "rich" as the second poorest, these two districts receive state money to bring them up to the level of the third poorest, and so on. The process stops when the state reaches some target, such as seeing to it that no district is poorer than the average district of the state, or when the state money runs out. Although New Hampshire distributes very little state aid for education, the money it does pay out is distributed in this fashion.

5) Weighted Population Formulas

This approach adopts some variation in the general model:

$$A_i = WADA_i \frac{A}{WADA_i}$$

where $WADA_i = xADA_j + yADA_k + zADA$,

A_i = State aid to the ith district,

$WADA_i$ = Weighted Average Daily Attendance in the ith district,

A = Total state funds available for distribution,

and x,y, and j are weights for different types of students j, k, and . Thus, for example, ADA_j might represent ADA for handicapped students who are given a weight of 2.0, ADA_k might represent ADA for disadvantaged students given a weight of 1.5 and ADA might represent ADA for all other students weighted at 1.0. There is no limit to the number of student classifications that can be employed in the procedure. The primary policy decision is the weight to be accorded each classification. The formula is administratively convenient, simple to operate and easily applied to any amount of available money with no changes required in the formula if funding fluctuates.

There are numerous variations on each of these five formulas and each of the five types can be combined with one or more of the others. The actual specification can become quite complex, as will become apparent when we see how these models are employed in vocational education.

II. Characteristics of Formulas Used to Distribute Vocational Education Funds

The remainder of this section examines the common features in procedures used by each state to distribute federal funds for vocational education. No two formulas we have reviewed are exactly identical; however, some share one or more characteristics. Thus, this section develops several taxonomies that enable one to speak generally about funds distribution.

For the most part, our analysis is based on procedures proposed for FY 1979. We use the word "proposed" to recognize that state authorities may have made within-year changes in its formula, possibly in response to comments from OVAE and that we may not have caught all of these changes. Hence, we cannot be absolutely certain that the formula we describe is the one employed by the given state in the given year. In a few states, either no formula was used in FY 1979 or procedures were so ambiguous that analysis was impossible. In these instances, procedures for FY 1980 were examined. For all fifty states, we reviewed Five Year Plans, Annual Plans, and any other documents describing distribution procedures. Additionally, we followed up these document reviews with telephone calls to state officials for clarification and additional information.

Our analysis concentrates on three basic steps of formula design: a) data selection, b) transformation of data into standardized scores, and c) transformation of point scores into dollar allocations or reimbursement rates. In the first step, the state determines which characteristics of the eligible recipients (i.e. school districts, community colleges, vocational-technical schools, etc.) will be used in the formula to determine relative levels of need. The number of students who come from low-income families, the rate of unemployment, and the assessed value of property in the area served by the eligible recipient are examples of some of the characteristics that a state may choose to employ.

In the second step, the raw data that were selected in Step a are converted to standardized scores in order to make them more usable in a formula. This is done because the widely divergent orders of magnitude of the raw data distort their relative levels of importance. For example, the average number of students from low-income families in a school district may be 10 times the size of the average rate of unemployment in a school district, (say, 100 students from low-income families vs. a 10% unemployment rate); but this does not mean that the number of students from low-income families should count 10 times as heavily as the unemployment rate in determining an eligible recipient's level of need for funding. Therefore, it is necessary to convert all characteristic measurements to a uniform point scale. For example, each eligible recipient might receive a score of between 1 and 10 points based on its unemployment rate and a score of between 1 and 10 points based on its number of students from low-income families.

In the third step, the various standardized scores are transformed into dollar allocations of VEA funds to LEAs and OERs; that is, they are introduced into a distribution formula. We have identifed three main types of formulas in current use: the tabular method, reimbursement rate equations, and the weighted points method.

A) Data Selection

Although the 1976 Amendments specify a number of criteria that are to influence the distribution of funds, the legislation does not describe what measures states are to use to implement these criteria. Regulations provide some directions; for example, states are instructed to use wealth per capita to measure relative financial ability. For the most part, however, states have enjoyed wide latitude in defining the variables they employ in distribution formulas. The descriptions of individual state's procedures include a number of additional measures that, in their details, are unique to the particular state under discussion.

The wide variety of measures employed makes taxonomy of variables rather uninformative. Rather, we have sought to determine what factors are included in each state's distribution formula. In some cases, a state may use only one variable to measure a particular factor; in other cases, a state may use several variables to build a composite score that

Table IV-1
Criteria Proposed in Formulas Distributions Section 120 Funds to Eligible Recipients FY 1979

	Assessed Value Per Capita	Assessed Value Per ADA	Local Tax Effort	Income Factor	Employ. Factor	New Programs	Cost Factor	Depressed Area
Alabama			X	X	X	X		X
Alaska				X	X			
Arkansas				X	X			
Arizona		X		X		X		X
California		X		X	X			
Colorado		X		X	X		X*	X
Connecticut	X			X	X			
Delaware		X						
Florida	X			X	X			
Georgia				X				
Hawaii	SINGLE DISTRICT							
Idaho		X		X			X	
Illinois		X		X		X		
Indiana		X		X	X		X*	X
Iowa		X		X				
Kansas		X		X	X	X		
Kentucky		X		X	X		X	
Louisiana		X		X				
Maine		X		X				
Maryland		X		X				
Massachusetts		X		X	X			
Michigan	X		X	X				
Minnesota		X		X	X		X	
Mississippi			X	X	X		X	

	Assessed Value Per Capita	Assessed Value Per ADA	Local Tax Effort	Income Factor	Employ. Factor	New Programs	Cost Factor	Depressed Area
Missouri			X	X	X			
Montana		X	X	X			X	
Nebraska	X			X	X	X		
Nevada	X			X				
New Hampshire		X		X				
New Jersey				X	X			
New Mexico				X				
New York	X			X	X			
North Carolina	X	X		X	X			X
North Dakota		X		X		X	X	
Ohio		X		X	X			
Oklahoma		X	X	X	X		X	
Oregon		X		X	X			
Pennsylvania		X		X	X			X
Rhode Island		X		X	X		X	
South Carolina		X	X	X	X			
South Dakota		X	X	X				
Tennessee		X		X	X			
Texas		X						
Utah				X				
Vermont		X		X	X			
Virginia		X		X			X	
Washington	X		X	X	X	X		
West Virginia		X		X				
Wisconsin		X		X	X		X	X
Wyoming		X		X	X		X	
TOTALS	8	34	8	47	29	7	13	8

is entered into the formula, or it may enter several measures of general criterion directly into the formula. For example, one state may measure concentration of low-income families with a single measure of the number of families below the poverty level in each LEA; another state might employ three low-income measures -- a count of families below poverty, a count of children receiving AFDC, and a count of children eligible for free school lunches.

Table IV-1 summarizes the types of factors each state uses in its distribution formula. The reader may refer to the descriptions of each state's procedures in Section III to determine how each state actually measures a particular factor. We have considered a state to employ a particular factor only where we are able to determine that it explicitly included the factor in its distribution procedures. In some instances, the descriptions of these procedures were too vague to discern whether a particular criterion was actually employed.

The first three columns of Table IV-1 identify three types of measures typically used as relative financial ability factors. VEA Regulations specify that states may measure relative financial ability using either local property wealth per capita or per capita local tax revenue as a percentage of local per capita income. As was noted above, many states are unable to determine the resident populations of local school districts. Hence, they have substituted property wealth per student as a measure of relative financial ability. Most states employing a wealth per student measure use average daily attendance (ADA) in the denominator, but some use average daily membership (ADM), and some use enrollment (E). In FY 1979, 34 states used wealth per student as a measure of relative financial ability; eight used wealth per capita; and measure of relative financial ability; eight used wealth per capita; and eight used local tax effort (of which six also used either wealth per capita or per student). In two states that used wealth measures, we were unable to determine which of the two measures -- per capita or per student -- was employed. As best we could determine, four states used no measure of relative financial ability at all.

Only three states did not propose some sort of income factor, although the actual measures varied widely. Similarly, 29 states used a variety of measures as an employment factor including local unemployment rates, labor markedt projections, youth unemployment rates, and dropout rates.

Perhaps reflecting the difficulty of quantifying a sensible "new program" factor, only seven states included this criterion in their distribution procedures. Moreover, among those claiming to use this factor, definitions were often vague, as were explanations of how the measure actually affected distributions of funds.

Thirteen states incorporated some measure of relative costs. For some states, this is simply a measure of differences in expenditures per student. A few employ more sophisticated measures of relative costs by program or type of student served.

Finally, eight states proposed a separate factor designating some eligible recipients as located in an economically depressed area. In every instance, these states also included other income and employment factors. As best we could determine, only three states did not use at least one measure related to designating an eligible recipient as located in an economically depressed area.

As has been noted previously, there is usually more than one way to measure any of these factors, and the number of options available to states raises a potentially serious problem. Where more than one measure is available, the choice of one measure over another is likely to favor a particular population or type of eligible recipient. For example, as a measure of relative financial ability, assessed value per student may have the effect of making inner-city schools look less needy than if assessed value per capita is used. In this case, the choice of the one method over the other implicitly carries with it a preference for helping schools outside large urban districts.

A similar problem exists with two possible methods of counting the number of students an eligible recipient serves. One measure, called FTE enrollment, is a count of the number of full-time equivalent students who are officially enrolled with a particular eligible recipient. Average Daily Attendance, or ADA, on the other hand, is a measure of average number of students who actually attend each day. An eligible recipient's ADA will, of course, be lower than its FTE enrollment if there is any absenteeism at all, and the more absenteeism a school has, the lower its ADA will be. It is often said that inner-city schools would tend to look less needy if ADA is used in the denominator of measure of relative financial ability than if FTE enrollment is used instead.

If School S, a suburban school, has the same FTE enrollment as does School I, an inner-city school, and if School S also has a lower rate of absenteeism than does School I, then School S will have a higher ADA than School I. If the distribution of funds is based partly upon each school's number of students as reflected by its ADA, then School S with its high ADA will receive more money than School I, other things being equal. That is, even though both schools have the same FTE enrollment, the suburban school will receive more dollars per FTE enrolled student than the inner-city school if ADA is used to measure Level of Need. Selecting ADA as a measure of Level of Need is then a way to favor suburban schools over inner-city schools.

Where there are two or more possible methods of measuring a particular factor included in the formulas where each of these methods will tend to favor different groups of eligible recipients, and where it can be shown that any one of these methods is objectively proper, the choice of a particular method over the others implicitly carries with it an intention to favor one group of eligible recipients over others. We emphasize this point because it shows the objectivity of a formula as a method of distributing funds can sometimes be illusory. A formula may appear objective because it seems to eliminate the possibility of arbitrary funding decisions on the part of state officials, but several subjective and often arbitrary decisions (such as whether to use ADA or FTE enrollments) are almost always part of formula construction.

Thus, the specificity with which states explain the methods that they use to measure general characteristics takes on great importance. This has been especially evident in analyzing states that purport to measure program quality in their formulas. If a state is not explicit about the precise manner in which it measures program quality, then there is no way of knowing whether its decisions about program quality are arbitrary or biased. Where a state is extremely vague about the way in which it measures particular formula factors, we will say that it is using Malleable Data. The term "malleable" is used to suggest that we have no way of knowing that the state does not adjust or mold its data set in order to achieve a particular distributional result.

B. TRANSFORMATION OF DATA INTO STANDARDIZED SCORES

States transform raw data into two types of standardized scores, noncontinuous and continuous variables. Table IV-2 summarizes approaches of each state.

a. Non-Continuous Variables. Twenty-nine states employed non-continuous variables in their distribution procedures. To calculate non-continuous variables, states typically followed one of six methods. Data are converted to whole number point scores only (as opposed to allowing the use of fractions).

(1) UNSPECIFIED METHOD

Here, the state converts all measures to a scale of, say, 10 points, but will not say how it does this. It may be that a well defined mathematical procedure is followed, but it is also possible that someone arbitrarily decides what point score to assign to each eligible recipient. In 10 states, we found no explanations of how these transformations are made.

(2) NONPROCEDURAL POINT SCALE METHOD

Within this method, point scores are read from tables such as the following, but the procedure by which the scale was developed is not explained. For example, to convert a measure of the percentage of families below poverty level to a fivepoint scale, a state might use the following table:

Percent of Families Below Poverty Level	Point Score
2 5.9	5
6 9.9	4
10 14.9	3
15 19.9	2
20 or more	1

State plans offer no rationale for this particular method of transformation. When state officials are queried, they no longer remember the origins of the table. We found non-procedural point scales in use in 12 states.

(3) PROCEDURAL POINT SCALE METHOD

This is best explained through an example. A state wishes to convert its measurements to 10-point scales, and one of these measurements is unemployment. The highest rate of unemployment observed for any eligible recipient is 15% and the lowest rate is 5%. The following calculation is performed to determine the size of the steps in the scale:

$$\frac{15\%\quad 5\%}{10\text{ points}} = 1\%\ /\ \text{point}$$

The following scale results:

TABLE IV- 2

METHODS OF DATA TRANSFORMATION
STATE SUMMARY

The following table indicates the type of data transformation method or methods that each State uses to accomplish Step 2. Some States use a data transformation method that is similar but not identical to one of the methods outlined in Section II(B)(2) of this report. For these States, we have marked the box for that data transformation method that is similar to the one actually used.

States which use more than one data transformation method have more than one box marked.

	NON-CONTINUOUS								CONTINUOUS							
	Unspecified	Non-Procedural Point Scale	Procedural Point Scale	Ranking	Quartile	Standard Deviation	Other Non-Continuous Methods	▨	Proportion of Total	Proportion of Maximum Value	Ratio to Average Value	Standardized Value	Other Continuous Methods	No Formula Used	Does Not Convert Data Into Points	Procedure Too Vaguely Explained To Determine if Continuous or Not
Alabama		x						▨	x				x			
Alaska	x							▨								
Arkansas	x							▨								
Arizona								▨						x		
California								▨	x		x					
Colorado		x						▨								
Connecticut								▨	x				x			

Table continued on next page

TABLE IV-2 (cont'd)

	NON-CONTINUOUS							CONTINUOUS							
	Unspecified	Non-Procedural Point Scale	Procedural Point Scale	Ranking	Quartile	Standard Deviation	Other Non-Continuous Methods	Proportion of Total	Proportion of Maximum Value	Ratio to Average Value	Standardized Value	Other Continuous Methods	No Formula Used	Does Not Convert Data Into Points	Procedure Too Vaguely Explained To Determine if Continuous or Not
Delaware								x		x					
Florida								x	x			x			
Georgia								x				x			
Hawaii													x		
Idaho		x													
Illinois		x													
Indiana					x										
Iowa											x				
Kansas			x												
Kentucky								x		x					
Louisiana	x														
Maine		x													x

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TABLE IV-2 (cont'd)

	NON-CONTINUOUS							CONTINUOUS							
	Unspecified	Non-Procedural Point Scale	Procedural Point Scale	Ranking	Quartile	Standard Deviation	Other Non-Continuous Methods	Proportion of Total	Proportion of Maximum Value	Ratio to Average Value	Standardized Value	Other Continuous Methods	No Formula Used	Does Not Convert Data Into Points	Procedure Too Vaguely Explained To Determine if Continuous or Not
Maryland						x									
Massachusetts							x		x						
Michigan			x												
Minnesota	x	x													
Mississippi											x				
Missouri											x				
Montana		x													
Nebraska		x	x												
Nevada								x		x					
New Hampshire	x		x												
New Jersey	x									x					

Table continued on next page

TABLE IV-2 (cont'd)

	NON-CONTINUOUS								CONTINUOUS							
	Unspecified	Non-Procedural Point Scale	Procedural Point Scale	Ranking	Quartile	Standard Deviation	Other Non-Continuous Methods		Proportion of Total	Proportion of Maximum Value	Ratio to Average Value	Standardized Value	Other Continuous Methods	No Formula Used	Does Not Convert Data Into Points	Procedure Too Vaguely Explained To Determine if Continuous or Not
New Mexico	x															
New York									x		x					
North Carolina															x	
North Dakota											x					
Ohio				x												
Oklahoma		x	x													
Oregon									x		x					
Pennsylvania						x									x	
Rhode Island	x															
South Carolina									x							
South Dakota		x														
Tennessee		x														

Table continued on next page

TABLE IV-2 (cont'd)

	NON-CONTINUOUS								CONTINUOUS							
	Unspecified	Non-Procedural Point Scale	Procedural Point Scale	Ranking	Quartile	Standard Deviation	Other Non-Continuous Methods		Proportion of Total	Proportion of Maximum Value	Ratio to Average Value	Standardized Value	Other Continuous Methods	No Formula Used	Does Not Convert Data Into Points	Procedure Too Vaguely Explained To Determine if Continuous or Not
Texas															X	
Utah									X				X			
Vermont											X					
Virginia	X															
Washington			X						X		X					
West Virginia									X		X					
Wisconsin	X															
Wyoming		X	X													
TOTALS	10	12	7	1	1	2	1		14	2	11	3	5	2	4	1

Unemployment Rate	Point Score
15%	10
14%	9
13%	8
12%	7
11%	6
10%	5
9%	4
8%	3
7%	2
6%	1
5%	0

Although this is an improvement over the first two methods, it is severely distorted by extreme values. For example, suppose that in the above, only one district had an unemployment rate of 15 percent and that all others had rates of 10 percent or less. Half the scale would then be determined by the value existing for one district. We found seven states using procedural point scales.

(4) RANKING METHOD

Using this procedure, one state ranked eligible recipients from highest to lowest on some raw score. For example, if there are 100 eligible recipients in the state, the district with the highest percentage of low-income families (either as a percentage of the district or a percentage of the state total) receives a score of 100; the district with the lowest percentage receives a score of 1. The primary defect of this method is that if the actual rank -- i.e., 100, 76, 44, 3, etc. -- is used in a formula, it bears no relation to the raw data. Thus, in our example just cited, the highest ranked recipient receives a score 100 times the lowest, although the actual value of the recipients raw score might be only twice the lowest, or any other ratio. Ranking is a sensible method only for establishing cut-off points or for levelling up. Employing a ranking as an operational value is inappropriate and mathematical nonsense.

(5) QUARTILE METHOD

One state used this variant of the ranking method. Recipients are first ranked from highest to lowest and then divided into quartiles (or some other subdivision -- quintiles, deciles, etc.). Recipients in the highest quartile are all given scores of 4, recipients in the lowest scores of 1. This procedure suffers from the same defects as the more general ranking method. Additionally, it ignores possibly important differences among recipients in each quartile.

(6) STANDARD DEVIATION METHOD

To assign points based on districts' numbers of low-income families, this method finds the mean number of low income families per district (M) and the standard deviation of this figure (SD). Points are then assigned by the following scale:

No. of Low Income Families	Point Score
(M + 4SD) to (M + 5SD)	10
(M + 3SD) to (M + 4SD)	9
(M + 2SD) to (M + 3SD)	8
(M + SD) to (M + 2SD)	7
(M) to (M + SD)	6
(M SD) to (M)	5
(M 2SD) to (M SD)	4
(M 3SD) to (M 2SD)	3
(M 4SD) to (M 3SD)	2
(M 5SD) to (M 4SD)	1

Deceptively precise, this method depends critically on the distribution of values around the mean and the relationship of the point score to the standard deviation. Thus, if the raw scores are normally distributed, approximately two-thirds of all recipients will have scores between 5 and 6 in the table illustrated above; fewer than 4 out of 100 would be likely to have scores of more than 7 or less than 4. Two states employed this approach.

None of these non-continuous methods constitutes an appropriate approach to transforming raw data. In addition to the defects already mentioned, all suffer from a common shortcoming. With non-continuous methods, a small change in a characteristic of an eligible recipient can sometimes mean a change of one whole point in its score, while other times a relatively large change in that characteristic will yield no change in the score and, therefore, no change in funding level. This practice lacks precision and can produce arbitrary results. The following example illustrates this point.

Table IV-3

Percent of Families Below Poverty Level	Point Score
2.0 5.9	5
6.0 9.9	4
10.0 14.9	3
15.0 19.9	2
20.0 or more	1

According to Table IV-3, if 5.9% of eligible recipient A's families, and 6.0% of eligible recipient B's families, and 6.1% of eligible recipient C's families are below poverty level, then A, B, and C receive 5, 4, and 4 points respectively. A difference of 0.1% between A and B gives A one whole extra point, a result that is likely to have a noticeable effect on their relative allocations of funds. On the other hand, the same 0.1% difference between B and C will not have the effect of giving B a funding advantage over C. This is arbitrary. In one case, a difference in the concentration of low-income families will have an effect on relative funding levels, and in another case, the same difference will have no effect whatsoever.

This type of method creates the possibility that a state can manipulate the table to favor certain eligible recipients over others. For example, suppose that B and C are eligible recipients which have characteristics which are basically very similar except for a slight difference in their concentrations of low income families (0.1%) as indicated above. Now, if B is favored over C for political reasons, the state may wish to increase B's allocation without increasing C's. This could be done with a slight adjustment of the table so that instead of 5.9% being the cut-off, now eligible recipients with low-income family concentrations of up to 6.0% would receive 5 points. This adjustment is just sufficient to give B an extra point without giving one to C. This type of manipulation is possible whenever a state uses the Non-Procedural Point Scale Method.

Because non-continuous methods contain several technical defects and because they are easily subject to manipulation, we conclude that such methods are inappropriate for transforming data that influence the distribution of funds.

b. Continuous Methods. As summarized in Table IV-2, twenty--one states employ one or more of four continuous methods of data transformation.

(1) PROPORTION OF TOTAL METHOD

The simplest of the four continuous approaches, this method expresses each variable as a percentage. The critical issue is the definition of the denominator. For example, if the variable being transformed is the number of low-income families, this may be expressed either as a percentage of all families in the district or as a percentage of the total number of low-income families in the state. The first calculation measures relative concentration within districts, while the second measures relative concentration within the state. As was noted above in Section I.B.4, OVAE generally prefers the first approach, despite its tendency to direct resources to small districts and to bypass large numbers of target populations. Fourteen states use this method.

(2) PROPORTION OF MAXIMUM VALUE METHOD

This method expresses each recipient's value as a percentage of the highest value for all recipients. For example,

$$\text{Low income score}_d = \frac{\text{No. of low income families in district}_d}{\text{Highest no. of low income families observed in any district}} \qquad (4)$$

The method is equivalent to using the proportion of total method above, when the state total is used in the denominator. Mathematically, it is equivalent to assigning the highest score in the percentage of state total method a value of 1.0 and adjusting other values accordings. For example,

	Raw Data	Proportion of Maximum Value	Proportion of State Total
A	2,000	1.0	40%
B	1,000	.5	20%
C	500	.25	10%
D	100	.05	2%
E	1,500	.75	30%
F	900	.45	18%
	5,000		

The relative values are unchanged. Recipient A's score is twice B's and four times C's regardless of which method is used. Two states employ this method.

(3) RATIO TO AVERAGE VALUE METHOD

The eleven states using this approach computed a recipient's score as the ratio of the recipient's value to the average value for the state. For example,

$$\text{(a) Points assigned to eligible recipient d based on number of low income families} = \frac{\text{\% of d's families that are low income}}{\text{\% of state's families that are low income (i.e., average \%)}} \qquad (5)$$

or

$$\text{(b) Points assigned to eligible recipient d based on assessed value of property} = \frac{\text{state average assessed value of property per capita}}{\text{assessed value of property per capita in district d}} \qquad (6)$$

Both of the above examples are constructed so that the number of points assigned to an eligible recipient varies directly with need (i.e., the greater the need, the greater the number of points assigned). Since a high concentration of low-income families is indicative of high need, Example (a) is constructed to assign points in direct proportion to that figure by placing it in the numerator. Since a high assessed value of property per capita indicate low need, Example (b) is constructed to assign points in inverse proportion to that figure by placing it in the denominator. In employing the Ratio to Average Value Method for a particular measure, one chooses the structure of either Example (a) or Example (b) depending on whether the value of that measure varies directly or inversely with need. Also note that where the score is a ratio of percentages, it is equivalent to the proportion of state total and proportion of maximum value methods.

(4) STANDARDIZED VALUE METHOD

Three states used a method that creates a standardized variable with a mean k and a standard deviation of 1, as illustrated in the following example:

$$\text{Points assigned to district d based on no. of low income families} = \frac{\text{no. of low income families in district d} \quad M}{SD} + k$$

The constant k is set such that k exceeds the value of the smallest observation minus the mean, the result divided by the standard deviation. This insures that no score will equal zero. Because of the need to employ a constant, this method is difficult to use for standardizing variables that have widely varying distributions; k will be larger for variables with very small or negative values.

All four continuous methods of data transformation avoid the major defects of non-continuous methods, and any single method will produce standardized measures of several variables. However, caution must be exercised not to mix methods for different variables that will be used in the same equation.

C. TRANSFORMING STANDARDIZED SCORES INTO DOLLAR ALLOCATIONS OR REIMBURSEMENT RATES

States employ three general methods for converting the scores computed in step two above into dollar allocations or rates of reimbursement: 1) a tabular method, 2) a reimbursement rate equation, and 3) a weighted points method. Table IV-4 summarizes the distribution of these three approaches among the fifty states. In reviewing these three approaches to distributing funds, it is useful to keep in mind the two basic purposes of an explicit allocation procedure: 1) to treat eligible recipients similarly insofar as their needs are similar, and 2) to treat them in a way that is appropriately different insofar as their needs differ. Assuming a formula employs one of the continuous methods of data transformation on factors defining needs, the first purpose will be fulfilled. That is, the formula will treat similarly eligible recipients whose needs are similar. However, there is no reason to believe that formulas employing these methods will succeed in fulfilling the second purpose of treating eligible recipients whose needs are different in a way that is appropriately different. The formula itself cannot determine how many more dollars are needed by a more needy recipient in order to provide a vocational education program that is as effective as

Table IV-4

METHODS OF FUNDS DISTRIBUTION
STATE SUMMARY

The following table indicates the type of method or methods that each State uses in Step 3 to transform point scores into dollar allocations or reimbursement rates. Some States use a method that is similar, but not identical, to one of the methods outlined in Section II(B)(3) of this report.

	Tabular Method	Reimbursement Rate Equation Method	Weighted Points Method	Other Type of Formula Used	Unclear Whether a Formula is Used	No Formula Used
Alabama		x	x			
Alaska					x	
Arkansas		x				
Arizona						x
California			x			
Colorado		x				
Connecticut			x			
Delaware			x			
Florida				x		
Georgia			x			
Hawaii						x
Idaho		x				
Illinois				x		

Table continued on next page

TABLE IV-4 (cont'd)

	Tabular Method	Reimbursement Rate Equation Method	Weighted Points Method	Other Type of Formula Used	Unclear Whether a Formula is Used	No Formula Used
Indiana			x			
Iowa	x					
Kansas			x			
Kentucky			x			
Louisiana			x			
Maine			x			
Maryland			x			
Massachusetts			x	x		
Michigan	x					
Minnesota			x			
Mississippi		x				
Missouri			x			
Montana	x					
Nebraska		x				
Nevada			x			
New Hampshire			x			
New Jersey			x			
New Mexico			x			

Table continued on next page

TABLE IV-4 (cont'd)

	Tabular Method	Reimbursement Rate Equation Method	Weighted Points Method	Other Type of Formula Used	Unclear Whether a Formula is Used	No Formula Used
New York*			x			
North Carolina					x	
North Dakota	x					
Ohio	x					
Oklahoma	x					
Oregon			x			
Pennsylvania*	x					
Rhode Island			x			
South Carolina			x			
South Dakota			x			
Tennessee	x					
Texas						x
Utah			x			
Vermont			x			
Virginia	x					
Washington			x			
West Virginia			x			
Wisconsin	x					
Wyoming	x					
TOTAL	11	6	27	3	2	4

*The State's formula distributes funds to large planning regions, each of which contains many LEAs. The planning regions do not use a formula in distributing funds among LEAs.

one provided by a less needy recipient. These parameters must be set outside the formula, and it is often difficult to determine how these decisions were made.

Even when a formula gives money to a more needy eligible recipient at a higher rate than it is given to a less needy eligible recipient (and it is not certain that this will always happen), it is not clear that the amount of extra money it receives is commensurate with the amount of extra money that it needs in order to run an effective vocational education program. Though such a formula does treat differently eligible recipients whose needs are different, it is possible that the degree to which this is done is not appropriate to the degree of difference in their needs.

(1) TABULAR METHOD

The most poorly documented of all four approaches, this method used by eleven states (see Table IV-4) consists of a printed table listing the reimbursement rate or amount per student an eligible recipient may receive for the total number of points computed when data are transformed using one of the methods described previously. Typically, no explanation of the derivation of the table is included in the State Plan, and telephone conversations with various state personnel usually did not produce much additional clarification. Although a more needy recipient generally receives a higher reimbursement rate or dollar allocation than a less needy one, as far as we know, this differential is set arbitrarily. It cannot be assumed that a clear rationale underlies the distribution. Therefore, we conclude that the Tabular Method is not an acceptable procedure unless it is accompanied by a clear explanation of how it was derived and of the thinking that led to this particular outcome.

(2) REIMBURSEMENT RATE EQUATION

This approach was used in six states and calculates a percentage of the recipients' costs that will be reimbursed by the state. It is a variant of the percentage equalizing model discussed at the outset of Section IV. For most vocational education funds, the equation assumes the general form:

$$R_d = wA_d + yB_d + zC_d \qquad (8)$$

where R_d = the rate of reimbursement for recipient d, A_d, B_d, and C_d are scores earned by recipient d for different measures of need (e.g., fiscal ability, concentration of low-income families, unemployment rate), and w, y, and z are constants set to weight each variable and control the statewide average rate of reimbursement.

The reimbursement method suffers from a major defect. Although a more needy recipient earns a higher rate than a less needy recipient, the more needy recipient does not necessarily receive more federal dollars than the less needy one, even if both apply the same tax effort. For example, suppose that a poor eligible recipient is assigned a reimbursement rate of 50% and a wealthy eligible recipient is assigned a reimbursement rate of 25%, that their general and student populations are exactly the same size, and that when they both apply the same reasonable level of tax effort (i.e., the same mill rate), the poor eligible recipient is able to raise $1000, and the wealthy eligible recipient is able to take in $6000. If the poor eligible recipient spends its $1000, it will be matched by $1000 in federal funds. If the wealthy eligible recipient spends its entire $6000, it will receive $2000 in federal funds. So here, even though the poor eligible recipient appears to have an advantage in that its reimbursement rate is higher than that of the wealthy eligible recipient, in reality, it is at a disadvantage. Even though it applies the same tax effort as the wealthy eligible recipient, the poor eligible recipient actually receives fewer dollars than the wealthy one.

To be equitable, the poor eligible recipient's reimbursement rate would have to be sufficiently higher than that of the wealthy eligible recipient so that if they apply the same local tax effort, the poor eligible recipient will receive enough additional dollars to equalize local, state, and federal dollars for vocational education. If the Reimbursement Rate Equation Method accomplishes this goal in a particular case, it is only by coincidence since this purpose is not built into it.

There is an additional problem with this approach as adopted in the six states using it in 197879. Typically, states have narrowly constrained the rangeof reimbursement rates so that the poorest eligible recipient may be reimbursed at a rate of 52 percent while the wealthiest is reimbursed at a rate of 48 percent. The state may perform elaborate procedures of data collection, transformation, and manipulation to determine which rate applies to a particular recipient; however, the range of differences in rates of remibursement is so narrow that the practical outcome is almost equivalent to a uniform rate for all LEAs. Moreover, combined with the above mentioned problem that wealthy recipients usually raise more local money per student, narrowly restricting the range of reimbursement rates distributes substantially more dollars per student to wealthy LEAs than to poorer ones. Therefore, we conclude that the Reimbursement Rate Equation Method, as presently used by the states, is not an equitable means for distributing federal funds.

(3) WEIGHTED POINTS METHOD

By far the most popular approach to distributing federal funds for vocational education, some variation of the Weighted Points Method (WPM) is used by twenty-seven states. WPM allocates funds based on each recipient's total point score as a proportion of total points earned by all recipients in the state. Thus, the general form is

$$S_d = \text{Total Federal Funds} \times \frac{P_d}{\underset{\substack{\text{all eligible}\\ \text{recipients } j}}{P_j}} \qquad (9)$$

where $d \; j$: $j = 1, 2, \ldots, n$;

n = total no. of eligible recipients;

P_d = sum of weighted points received by d;

P_j = sum of weighted points received by j.

(If this notation is not familiar to the reader, it will suffice to understand that P_d refers to the total weighted points received by d, that P_j refers to the total of all weighted points received by all eligible recipients j.)

There are two variations on this basic form:

Variation 1:

$$S_d = \text{Total Federal Funds} \times \frac{P_d \ \times \text{Enrollment}_d}{\underset{\text{all } j}{}\ (P_j \times \text{Enrollment}_j)} \qquad (9a)$$

This variation is preferalbe to the one shown in (9) in cases where the values of P do not reflect the relative sizes of the populations served.

Variation 2:

$$S_d = \text{Total Federal Funds} \times \frac{P_d \times \text{Approved Program Costs}_d}{\underset{\text{all } j}{}\ (P_j \times \text{Approved Program Costs}_j)} \qquad (9b)$$

In effect, this variation makes the allocation S_d dependent on some prior determination of what the allocation should be: Approved Program Costs$_d$. Unless Approved Program Costs are determined by a fair formula (and there is usually no reason to assume that they are), then it is doubtful that this variation gives State Officials a variable which they may be free to adjust until they get a distribution of funds that is desired for political reasons even though it is inequitable.

In all three equations -- 9, 9(a), and 9(b) -- P_d is the result of one of the data transformation equations of the general form:

$$P_d = wA_d + yB_d + zC_d \qquad (10)$$

where A, B, and C are scores on different measures of need, and w, y, and z are weights assigned to each score. To better understand how WPM works, it is helpful to rewrite formulas 9(a) and 9(b) in the general form:

$$\text{Dollars allocated to Eligible recipient} = \text{Total Funds Available} \times \frac{aA_d^* + bB_d^* + cC_d^*}{\sum\limits_{\substack{\text{all eligible}\\ \text{recipients}}} (aA_i^* + bB_i^* + cC_i^*)} \qquad (11)$$

Our analysis of WPM will be much easier if we assume that the scores A*, B*, and C* are on a scale between 0 and 1 such that $\max A^* = \max B^* = \max C^* = 1$. By making this assumption, we reach the same conclusion that we would reach if A*, B*, and C* were on a 5 point, 10 point, or any other uniform scale, but we are saved from performing some cumbersome algebra.

Given this assumption, (11) then becomes:

$$\text{Dollars allocated to Eligible Recipient} = \text{Total Funds Available} \times \frac{aA_d^* + bB_d^* + cC_d^*}{a + b + c} \qquad (12)$$

Then we can say that:

$$\text{Dollars allocated to Eligible Recipient } d = \text{Total Funds Available} \times (wA_d^* + yB_d^* + zC_d^*) \qquad (13)$$

where $w = \frac{a}{a + b + c}$

$$y = \frac{b}{a + b + c}$$

$$z = \frac{c}{a + b + c}$$

Notice w, y, and z are between 0 and 1 and that $w + y + z = 1$.

(13) can then be converted to still another form:

$$\text{Dollars allocated to Eligible Recipient} = w \times \text{Total Funds Available} \times A_d^* + y \times \text{Total Funds Available} \times B_d^* + \qquad (14)$$

$$z \times \begin{matrix}\text{Total Funds}\\ \text{Available}\end{matrix} \times C^*_d$$

When represented in this form, it is clear that the allocation to each eligible recipient consists of three components. The first component is in the first set of brackets. Here an amount

$$w \times \begin{matrix}\text{Total Funds}\\ \text{Available}\end{matrix} \qquad (15)$$

has been earmarked for distribution on the basis of each eligible recipient's value of A^*. A^*_d is then the proportion of this amount that eligible recipient d will receive. (Since we have assumed that 0 A^*_d 1 and that $\underset{\text{all } d}{} A^*_d = 1$.)

Similarly, an amount

$$y \times \begin{matrix}\text{Total Funds}\\ \text{Available}\end{matrix} \qquad (16)$$

is distributed in proportion to eligible recipient's values of B^*, and

$$z \times \begin{matrix}\text{Total Funds}\\ \text{Available}\end{matrix} \qquad (17)$$

is distributed in proportion to eligible recipient's values of C^*.

To make this clearer, we can say that there are actually three separate distributions of three separate funds defined as follows:

$$\text{"A" fund} = w \times \begin{matrix}\text{Total Funds}\\ \text{Available}\end{matrix} \qquad (18)$$

$$\text{"B" fund} = y \times \begin{matrix}\text{Total Funds}\\ \text{Available}\end{matrix} \qquad (19)$$

$$\text{"C" fund} = z \times \text{Total Funds Available} \quad (20)$$

This means that we have three subformulas, each of which allocates funds to eligible recipients:

$$\text{Allocation to eligible recipient d from the "A" fund} = \text{"A" Fund} \times A^{*}_{d} \quad (21)$$

$$\text{Allocation to eligible recipient d from the "B" fund} = \text{"B" Fund} \times B^{*}_{d} \quad (22)$$

$$\text{Allocation to eligible recipient d from the "C" fund} = \text{"C" Fund} \times C^{*}_{d} \quad (23$$

The propriety of a state's use of WPM then depends on the propriety of each of the sub-formulas, which in turn depends on the propriety of the way in which the relevant score (A*, B*, or C*) is defined. Scoring procedures, therefore, play a critical role in WPM and deserve more elaborate discussion.

a. Proper Scoring Procedures. In selecting particular measures for each formula factor (A, B, C, etc. above), states to a great extent have adopted whatever data happen to be readily available. Although economical, this practice may seriously undermine efforts to target funds to specific populations and to monitor the effectiveness of targeting efforts. To illustrate the problem, consider the way a number of states use an unemployment factor in their formulas. Typically, some variation of the following is included:

$$U_d^* = \frac{\text{number of unemployed persons in eligible recipient d's district}}{\text{number of unemployed persons in State}} \tag{24}$$

This score is based on the total number of unemployed persons residing in an eligible recipient's district without regard to whether these unemployed persons are enrolled in or even given the opportunity to enroll in vocational education courses. This means that two eligible recipients with the same number of unemployed persons residing in their districts will receive the same number of dollars even if one of them offers extensive vocational education retraining programs for unemployed persons while the other offers none, other things being equal. Using this measure provides no incentive to recipients to actually enroll unemployed persons in vocational education.

An alternative definition for U* would be:

$$U_d^* = \frac{\text{number of unemployed adults who have enrolled for retraining with eligible recipient d}}{\text{number of unemployed adults who have enrolled for retraining in entire State}} \tag{25}$$

If this definition were used, funds would be distributed on the basis of the number of unemployed persons that eligible recipients are actually retraining. Since their allocation would be dependent on the number of these persons that they enroll, eligible recipients would have an incentive to seek these people out and perhaps establish special programs to serve them.

A similar problem arises when states include measures of relative financial ability that either do not reflect or are not adjusted for differences in number of students served. Thus, in some states when the formula is mathematically manipulated to isolate the sub-formula for ability to pay, the result resembles the following:

$$\begin{array}{l}\text{Allocation to eligible}\\ \text{recipient d from the}\\ \text{"Ability to Pay" fund}\end{array} = \text{Ability to Pay Fund} \times AP^{*}_{d} \qquad (26)$$

and

$$AP^{*}_{d} = \frac{\text{State Average Property Wealth per Student}}{\begin{array}{l}\text{Property Wealth per Student for Eligible}\\ \text{Recipient d}\end{array}} \times K$$

(K is simply a reduction factor defined so that AP* = 1.)

It is logically possible for a small town and a large city to have the same property wealth per capita thereby giving them the same value of AP*. This means that both the small town and the large city will receive the same number of dollars from the "ability to pay" fund, even though the large city serves many more students than the small town. Several states do not appear to understand that it is not sufficient merely to include enrollment somewhere in the formula. Rather, numbers served must be related to each factor.

In order that the number of dollars per student that is allocated to each eligible recipient be equitable, the score associated with each sub-formula should be proportional to some relevant number of students (such as the number of disadvantaged vocational, handicapped vocational, or regular vocational students) enrolled with each eligible recipient. For example, if A* is to be a disadvantaged score, it should be proportional to the number of disadvantaged students in each district. One way to define A* to accomplish this is to say:

$$A_d^* = \frac{\text{number of disadvantaged vocational students served by d}}{\text{number of disadvantaged vocational students in entire State}} \qquad (27)$$

When this score is used, all eligible recipients receive the same number of dollars from the "disadvantaged fund" for each disadvantaged student that they serve.

It should be noted that some measure resembling (27) is necessary even if -- indeed, especially if -- OVAE insists that "relative concentrations" of target populations be measured as a percentage of the population within the area served by an eligible recipient rather than as a percentage of the entire state. OVAE's measure must be adjusted for size of population served; otherwise, it is likely that very small recipients will receive the bulk of setaside funds.

Adjusting scores for numbers of students served may not always be sufficient. Attempts to adjust scores that do not properly belong in the WPM approach can introduce additional difficulties. This problem is best illustrated by the treatment of relative financial ability.

b. Adjusting for Relative Financial Ability. Most states using WPM include a measure of relative financial ability in the calculation of points. As a typical example, suppose that a state establishes the "B" fund for general use on all types of students and seeks to distribute funds with regard to relative financial ability. The general procedure is some variation of the following:

$$B_d^* = \frac{\text{total number of students served by d}}{\text{total number of students in State}} \times \frac{\text{Property wealth per capita for entire State}}{\text{Property wealth per capita for eligible recipient d}} \qquad (28)$$

To evaluate this method of adjusting for ability to pay, consider two hypothetical eligible recipients, G and H, which are identical in every way including the number of students they serve, except that the value of property wealth per capita is twice as great for G as it is for H (i.e., G is "poorer" than H). The formula then allocates twice as much money to G as it does to H. Since H can raise twice as much money as G if they both apply the same tax effort (that is, if they both tax property at the same mill rate), G is given twice as much federal support as H. Now, it may appear that the purpose for doing this is to raise the financial standing of the poorer eligible recipient (G) up to the level of the wealthier eligible recipient (H), but it is not at all certain that G will actually receive sufficient funds to achieve this result. This can be demonstrated with some hypothetical figures.

First, we consider a case in which the result after distributing the federal money is that the poorer eligible recipient (G) is still worse off than the wealthier eligible recipient (H). Suppose that formula (28) results in G receiving $1000 per student and H receiving $500 per student. This is in keeping with the assumption that H's ability to pay is twice that of G. Suppose also that G and H both apply the same tax effort by using a "reasonable" mill rate, Mill Rate X, in order to raise revenue for vocational education. Finally, suppose that when apllying Mill Rate X, eligible recipient G raises $1000 per student and H takes in $2000 per student. Then the total amounts of federal and local funds that G and H have are, respectively, $2000 per student and $2500 per student. G, the poorer eligible recipient, has fewer total dollars per student than does H. To adjust this situation so that G and H are both left with the same number of dollars per student, we would have to take $250 per student away from H and give it to G, thereby leaving each with a total of $2250 per student in federal and local funds. The formula, however, does not do this.

Similarly, it is possible that a formula of this structure could distribute money such that a relatively poor eligible recipient is not just brought up to equity with other more wealthy eligible recipients but is actually put in a superior position.

Consider the positions in the above example, but with one small change: the assessed value of property for both G and H is now 1/4 of what it was before. This means that when they tax using the "reasonable" mill rate, they student, and H will raise only $500 per student in local funds. If, just as before, the formula gives G $1000 per student and H $500 per student in federal funds, G will have a total of $1250 per student in federal and local funds while H has a total of only $750 per student. The formula has not reversed the relative situations of G and H so that G is now better off than H.

This is just as inequitable as the result of the other example in which G remains worse off than H. Remember that G and H are serving communities that are identical in every way except that their abilities to pay differ. They have the same number of lowincome persons, so there is no reason to think that one has greater need than the others in this sense. In view of this, it is no more fair to leave G better off than H than it is to leave H better off than G.

This method of adjusting for relative financial ability is then arbitrary. It might equalize ability to pay, but it could also leave the poor eligible recipients worse off than the wealthy ones or leave the wealthy eligible recipients worse off than the poor ones. Indeed, there exists no equitable way to include relative financial ability in WPM procedures. Consequently, WPM is appropriate only if it is determined that ability to pay need not be considered in the distribution of funds (as in states that have achieved equalization or at the postsecondary level where local funds are not involved).

c. Selecting Weighting Coefficients. Once appropriate factors have been identified and properly scored, there remains the problem of how to weight each factor score. Recalling equation (10), assume that A*, B*, and C* are defined as follows:

$$A_d^* = \frac{\text{Number of regular vocational students enrolled with d}}{\text{Number of regular vocational students in State}} \qquad (29)$$

$$B_d^* = \frac{\text{Number of disadvantaged vocational students enrolled with d}}{\text{Number of disadvnataged vocational students in State}} \qquad (30)$$

$$C_d^* = \frac{\text{Number of handicapped vocational students enrolled with d}}{\text{Number of handicapped vocational students enrolled in State}} \qquad (31)$$

It will be true that:

$$w \times \begin{array}{l}\text{Total Federal}\\ \text{Funds}\end{array} = \begin{array}{l}\text{Number of dollars available for all}\\ \text{regular vocational students in State}\end{array} \qquad (32)$$

$$y \times \text{Total Federal Funds} = \text{Number of dollars available } \underline{\text{for all}} \text{ disadvantaged vocational students in State} \qquad (33)$$

$$z \times \text{Total Federal Funds} = \text{Number of dollars available } \underline{\text{for all}} \text{ handicapped vocational students in State} \qquad (34)$$

It will also be true that:

$$\frac{w \times \text{Total Federal Funds}}{\text{Number of regular vocational students in State}} = \text{Number of dollars allocated } \underline{\text{for each}} \text{ regular vocational student} \qquad (35)$$

$$\frac{y \times \text{Total Federal Funds}}{\text{Number of disadvantaged vocational students in State}} = \text{Number of dollars allocated } \underline{\text{for each}} \text{ disadvantaged vocational student} \qquad (36)$$

$$\frac{z \times \text{Total Funds}}{\text{Number of handicapped vocational students in State}} = \text{Number of dollars allocated } \underline{\text{for each}} \text{ handicapped vocational student} \qquad (37)$$

Consequently, the values of the weighting coefficients w, y, and z determine the number of dollars that will be allocated for each type of student. When it is asked then what the appropriate values of w, y, and z are, it is equivalent to asking what number of dollars per student should be allocated for each type of student.

This is a matter that cannot be settled easily, because while it is clear that more dollars per student should be allocated for disadvan-taged and handicapped students than for regular students, it is not clear how many extra dollars should be spent on these needy students. Ideally, one might say that the appropriate weight depends on how much more it costs to bring disadvantaged and handicapped students to a specified level of vocational ability than it does to bring regular students to that same level of ability. In practice, however, it is not so simple. Though the number of dollars spent will undoubtedly have an impact on level of vocational ability attained by students, it is not the only factor that will affect the levels of ability attained. For instance, individual characteristics of students will also be an important determinant of the levels of ability achieved. Among the disadvantaged, some students will be more highly motivated than others. Additionally, the ability of teachers, the degree to which they succeed in motivating their students, and the usefulness of the skills taught will also affect the levels of vocational ability attained.

Because of such factors, there is no unique level of vocational ability that a given type of student will attain given the number of dollars spent on his education. This makes it impossible to say precisely how many more dollars need to be spent on handicapped and disadvantaged students than on regular students in order that they all attain the same level of vocational ability. However, while it is not possible to make a precise determination of this type, some sort of estimate should be possible. That is, in spite of the fact that each student may have different funding needs, it is probably true that the average level of need for handicapped and disadvantaged students is higher than that of regular students and that we can find some number of extra dollars that can be spent on these more needy students which will, on average, bring them to the same level of vocational ability as regular students.

This can be done using the WPM where w, y, and z are defined as follows:

$$w = \frac{R}{R + dD + hH} \qquad (38)$$

$$y = \frac{dD}{R + dD + hH} \qquad (39)$$

$$z = \frac{hH}{R + dD + hH} \qquad (40)$$

where R = number of regualar vocational students

D = number of disadvantaged vocational students

H = number of handicapped vocational students

$$d = \frac{\text{average cost of educating disadvantaged vocational student}}{\text{average cost of educating regular vocational student}}$$

$$h = \frac{\text{average cost of educating handicapped vocational student}}{\text{average cost of educating regular vocational student}}$$

Using this approach to determine the values of the coefficients w, y, and w, y, and z provides that, on the average, students with special needs will receive extra funds in proportion to the degree to which they impose excess costs on their institutions. The approach offers a rational means for justifying the weight assigned to different factors.

It is not evident that states presently using WPM have actually employed this type of method for determining weights. In fact, we have found no evidence that any state has a procedural method of setting these coefficients. Several state officials told us that they merely adjust the coefficients until they obtain a formula that distributes funds the way they want them distributed. We suspect that this practice is widespread.

SUMMARY

The ways states implement any of these three methods of distributing VEA funds differ greatly in their details. Nevertheless, it is possible to draw some general conclusions regarding the state of formula design as of the close of FY 1979.

Our conclusions are as follows. First, while some states clearly demonstrated better understanding of the complexities of formula design than others, no state was using a procedure free of technical difficulties arbitrary judgements, unexplained calculations, questionable interpretations of federal law, or inaccurate and inappropriate data.

Among the more serious difficulties are the following:

1. Failure to include explicitly in distribution procedures one or more of those factors such as relative financial ability, concentration of low-income families, location in an economically depressed area, or relative costs which are supposed to influence the allocation of VEA funds.
2. The use of ambiguously defined measures subject to arbitrary and possibly unlawful manipulation.
3. The use of non-continuous measures that fail to make adequate distinctions among recipients, are subject to insidious manipulation, and produce arbitrary results.
4. Failure to standardize scores that have widely varying magnitudes and hence introduce implicit weights into distribution procedures.
5. Insufficient explanations for the derivation of tables, ranges of reimbursement rates, and weights assigned to various factors.
6. The use of elaborate ranking procedures and mathematical manipulations that, despite their complexity, produce distributions that are nearly uniform because of constraints that are imposed externally on the range of permissible differences in allocations per student or rates of reimbursement.

Second, none of the three general models used in FY 1979 is capable of fairly incorporating all the criteria the Congress has specified to determine allocation of funds. Among the three, the Weighted Points Method is by far the superior approach. In addition to requiring explicit consideration of appropriate weights, it offers three attractive features:

1. It can be used to distribute any amount of money, and its parameters need not be changed to adjust to annual fluctuations in available funds. Hence, it is administratively convenient and avoids any long term commitment of a particular level of funding.
2. It provides some money to all eligible recipients. No cut-off need be established, which can be subject to arbitrary judgment and political interference.
3. If properly designed, it links dollars received directly to the number of students served. Thus, it provides a sensible system of incentives. This advantage holds only if states count the actual number of target populations served, as opposed to the number residing in the district.

Nevertheless, WPM as presently implemented suffers from several shortcomings:

1. Adjustments for differences in relative financial ability cannot be incorporated directly in the weighting procedure. Consequently, WPM must be combined with another method of equalizing relative financial ability, or it must be restricted to those situations where relative financial ability has been neutralized and is not a relevant concern.
2. What is administratively convenient for state officials is problematic for local administrators, who are unable to predict future allocations or secure long term commitments or funds.
3. It does not take into account differences in costs among different programs or different districts.

~~We shall turn to these issues and suggest an alternative method~~.

CHAPTER V

Patterns of Funds Distribution Within States

The 1976 Amendments to the Vocational Education Act sought to prescribe more explicit directions as to how states were to allocate federal funds for vocational education to eligible recipients. The legislation continued the practice of setting aside portions of funds for the handicapped and disadvantaged -- ten and twenty percent, respectively -- and included a fifteen percent setaside for adult and postsecondary students. Additionally, the Act directed states to allocate funds to recipients based on four criteria: 1) location in an economically depressed area, 2) proposals for new programs to meet new and emerging manpower needs, 3) relative financial ability, and 4) concentration of low-income families or individuals (or, in the case of "other eligible recipients," concentration of students whose education imposes higher than average costs). In this chapter, we examine in twelve states how the funds have been distributed and the extent to which the distribution reflects these Congressional objectives.

To detect patterns in the distribution of funds to LEAs, the study employed two types of analysis. First, regression analysis was used to examine the variation in VEA revenues among LEAs in each of the twelve states. Second, the study organized LEAs into enrollment weighted quartiles and compared VEA revenues per student in the top half of the distribution with expenditures in the bottom half.

The general form of the regression equation used throughout the analysis is the following:

$$R_i = a_o + b_1V_i + b_2W_i + b_3P_i + b_4U_i + b_5H_i + b_6D_i + b_7 + L_i$$

where R_i = VEA revenues in LEA i

V_i = Vocational education enrollments in LEA i

W_i = Assessed value per ADA in LEA i

P_i = Percentage of children in LEA i who live in low-income families

U_i = the Unemployment rate in LEA i

H_i = the percentage of LEA i's vocational education enrollment that was handicapped

D_i = the percentage of LEA i's vocational education enrollment that was disadvantaged

L_i = the percentage of LEA i's vocational education enrollment that had limited English proficiency

a_o = a constant

$b_1 \ldots\ldots b_7$ = regression coefficients.

Thus, the regression analysis addresses a simple question: controlling for the effects of each of the other variables, do an LEA's VEA revenues increase as relative financial ability decreases, as the number of children from low-income families increases, as local unemployment rate increases, or as the percentages of handicapped, disadvantaged and limited English speaking students increase?

The limitations of this kind of analysis should be noted. Regression analysis tests for systematic linear relationships between the dependent variable (revenues) and the independent variables (vocational enrollment, wealth, etc.). It will find significant results only if the dependent variable and the independent variable move in step, (either directly or inversely). Thus, a positive statistically significant relationship will be found if as the value of the independent variable increases, the value of the dependent variable also increases. Moreover, these increases must be close to proportional throughout the range of observed values. That is, if when the independent variable increases from 7 to 8 the dependent variable increases by ½, then an increase from 8 to 9 or from 20 to 21 should also produce increases of ½. To obtain statistically significant results, the analysis can tolerate some deviations from a perfect linear relationship between the dependent and independent variables, but the greater the deviation is the greater is the likelihood that statistically significant findings will not be obtained.

Because of the limitations of regression analysis, the study employed a second type of analysis. In each state, LEAs were ranked from lowest to highest on several different measures -- relative financial ability, unemployment rate, poverty, etc. The LEAs were then divided into quartiles such that the first group of LEAs accounted for approximately one-fourth of the statewide enrollment in vocational education. These quartiles excluded the largest city in each state, because this LEA's enrollment is typically so large that it would fill a quartile by itself. Average VEA revenues per student were then calculated for LEAs in the top half of the distribution and for LEAs in the bottom half of the distribution, and the ratio of the two was determined. Thus, a ratio greater than 1.00 indicates higher VEA revenues per student in the top half of the distribution and a ratio less than 1.00 indicates higher

VEA revenues per student in the bottom half. For each measure, VEA revenues in the largest city are displayed separately.

A. Distribution to Economically Depressed Areas and Areas Proposing New Programs

To determine the allocation of federal funds, Congress directs

> that the State shall, in considering the approval of such applications [for funds], give priority to those applicants which --
> (i) are located in economically depressed areas and areas with high rates of unemployment, and are unable to provide the resources necessary to meet the vocational education needs of those areas without Federal assistance, and
> (ii) propose programs which are new to the area to be served and which are designed to meet new and emerging manpower needs and job opportunities in the area, and, where relevant, in the State and the Nation ...(P.L. 94482, Sec. 106(a)(5)(A)).

1. Allocations to Economically Depressed Areas. The legislation defines neither what constitutes an "economically depressed area" nor what is to be considered a "high" rate of unemployment. Consequently, liberal interpretations of both factors have enabled some states to label almost all recipients "economically depressed." While technically legal, given the failure of both the legislation and the regulations to be more specific, it is doubtful that this practice reflects the Congressional intent to direct more resources to recipients with greater needs.

OVAE has since ruled that definitions of economically depressed areas include at a minimum a measure of local unemployment, but it has not specified how this variable is to be used (e.g., as a continuous or non-continuous measure). Nor has OVAE limited the other measures states may employ. Consequently, states are still able to label most recipients economically depressed.

For purposes of our analysis, we have assumed that Congress had a rather simple notion in mind -- namely, that all other things being equal, recipients with higher rates of unemployment should receive larger amounts of federal funds. Using multiple regression to control other variables affecting the distribution of funds (e.g., size, wealth, income, etc.), we found a positive statistically significant relationship between VEA expenditures and unemployment rates in only one of the twelve states, Illinois.*

Regression analysis checks for a systematic linear relation. Given the peculiarities of many state distribution procedures, it is possible that, on the average, states have allocated more funds to LEAs with high unemployment but that the allocation is haphazard rather than rational.* Consequently, ranking LEAs by unemployment rate, we inquired whether federal revenue per student was, on the average, higher in LEAs in the top half of the distribution weighted by vocational education enrollment. Table V-1 summarizes the results of this inquiry, displaying the ratio of the two figures as well as amounts per student for each state. A ratio greater than one indicates that, on the average, states concentrated more federal money in LEAs with above average unemployment, and

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* For local unemployment rates, we relied on data from the U.S. Office of Revenue Sharing: Series in Local Government Unemployment Rates, Second Quarter 1978.

** By "rational," we simply mean that the procedure for considering an LEA's unemployment rate is empirically based and that two LEAs with equal rates are treated equally.

Table V-1

Average Federal Revenue Per Student Enrolled in Vocational Education for Secondary LEAs Classified by Rate of Unemployment - 1978-79

	(1) Largest City	(2) LEAs with below average unemployment	(3) LEAs with above average unemployment	Ratio of (3) to (2)
CALIFORNIA	24.96	19.13	22.08	1.15
COLORADO	39.84	24.25	38.17	1.57
FLORIDA	10.15	9.36	12.54	1.34
ILLINOIS	21.76	21.89	26.72	1.22
KANSAS	7.75	42.65	47.03	1.10
NEW YORK	95.23	56.41	101.93	1.81
OKLAHOMA	32.50	25.05	38.72	1.55
PENNSYLVANIA	167.23	59.99	74.74	1.25
SOUTH DAKOTA	96.34	14.80	44.73	3.02
TEXAS	88.32	43.50	53.00	1.22
UTAH	43.64	44.68	34.97	.78
WASHINGTON	12.03	19.24	21.84	1.14

the extent to which it exceeds one indicates the degree of concentration. In each state, federal revenues per student in the largest city are presented separately to avoid swamping the analysis with figures for a single LEA that may represent as much as 25 percent of the state's enrollment.

Table V-2 reveals that, on the average, in all but one of the twelve states, federal revenues per student outside the largest city are higher in LEAs with above average unemployment. Thus, while only a few of the twelve states have a mathematically based method for allocating federal funds in accordance with unemployment, many more manage to concentrate federal funds in areas of high unemployment, albeit in a rather haphazard, ambiguous way.

Note, however, the importance of excluding the central city from this analysis. In Illinois, for example, Chicago with an above average unemployment rate receives less federal money per student than the group of LEAs with below average unemployment. If Chicago had been included in the calculations of unemployment ratios for Illinois, revenues per student would have been about equal in LEAs with above and below average unemployment; there would have been no evidence of concentration. In Utah, including Salt Lake City would increase revenues per student in LEAs with high unemployment, but its inclusion would not raise the amount above that for LEAs with below average unemployment; the state would still be allocating more federal funds per student to LEAs with below average unemployment. On the other hand, including Denver, Colorado and Rapid City, South Dakota in these states' calculations would

Table V-2

Average Federal Revenue Per Student Enrolled in Vocational Education in LEAs with Above Average and Below Average Relative Financial Ability Secondary, 1978-79

	(1) Largest City	(2) Above Average RFA	(3) Below Average RFA	Ratio of (3) to (2)
CALIFORNIA	24.96	20.65	21.08	1.02
COLORADO	39.84	32.21	29.75	.92
FLORIDA	10.15	10.68	11.01	1.03
ILLINOIS	21.76	21.22	26.30	1.24
KANSAS	7.75	39.17	49.78	1.27
NEW YORK	95.23	108.90	43.34	.40
OKLAHOMA	32.50	35.81	28.32	1.26
PENNSYLVANIA	167.23	69.76	64.50	.92
SOUTH DAKOTA	96.34	14.91	49.92	3.35
TEXAS	88.32	45.08	51.59	1.14
UTAH	43.64	29.96	51.00	1.70
WASHINGTON	12.03	18.69	23.04	1.23

increase the degree of funds concentration in LEAs with high unemployment.

The rather haphazard relationship between unemployment rates and allocations of federal funds should be interpreted cautiously. Except in a few states where school district borders are coterminous with county borders, there are no accurate measures of unemployment rates in all LEAs. Rather states have been forced to assign a county rate to all LEAs contained within the county borders. This practice fails to reflect potentially great disparities among LEAs within counties. Thus, for example, Alameda County in California contains twenty LEAs. These include Piedmont Unified, one of the highest income districts in the state, Emery Unified, one of the lowest income districts in the state, as well as the cities of Oakland and Berkeley. Assigning the same unemployment rate to all of these LEAs makes little sense, and the state has therefore chosen to assign little weight to unemployment rates in its funds distribution formula. Consequently, it is not surprising that the states' patterns of allocating VEA funds do not appear to consider differences in unemployment rates. Given the imprecision with which unemployment can be measured, this is probably wise policy.

The difficulty of obtaining precise measures of unemployment illustrates a problem that will appear frequently throughout our analysis. Simply put, in establishing criteria for allocating VEA funds, the Congress has given insufficient attention to the question of whether a particular criterion may be accurately measured for an LEA (as opposed to a municipality, township, or county). Unless the Congress is willing to consider supporting the costs of collecting new data (and the costs can be substantial), it should consider more carefully what objectives for targeting funds can be effectively achieved using data that are available for most school districts.

2. Allocations to Areas Proposing New Programs. In requiring states to give funding priority to recipients proposing new programs to meet new and emerging manpower needs, Congress apparently had in mind discouraging localities from continuing to operate outdated or unnecessary training programs and encouraging them to anticipate labor market changes that might cause shortages or surpluses of skilled workers. However, while the intent is clear, the emphasis on "new" programs has not addressed this aim very precisely. In many instances, responding to changing local labor market conditions requires expanding or updating existing programs rather than creating new ones. Moreover, rewarding LEAs for initiating new programs may encourage unnecessary programs, offered simply because they are new and therefore eligible for funding, or elaborate disguises for existing programs that are changed in name only. In addition to such perverse incentives, there are conceptual difficulties of determining what constitutes a "new" program. How long may a program operate before it is no longer considered new, six months, a year, three years? How different must a new program be from an existing one to be considered new?

As a result of these and other difficulties, states have largely ignored the new program criterion in allocating federal funds. In 1978-79, only seven of the fifty states reported using a factor considering new programs in their procedures for distributing federal funds. Typically, these states gave to LEAs offering new programs additional points or weighting to the scores used to rank recipients for distributing federal funds. In some cases, additional points were based simply on the number of new progams offered, with no consideration about the number of students actually enrolled in them. In other instances, LEAs earned points based on the ratio of expenditures for new programs to total expenditures for vocational education. Apparently, states employing this practice did not realize or did not care that it put LEAs with large vocational education programs at a distinct disadvantage. In short, even among the few states attempting to implement the requirement, procedures were highly arbitrary and imprecise.

Unable to define an acceptable definition and measure of new programs and lacking data on changes in program offerings of LEAs, we did not attempt any quantitative analysis of the flow of funds with respect to new program offerings. However, given the small number of states reporting any attempt to use this criterion, we think it safe to say that it has little or no effect on the allocation of federal funds.

B. Distributions with Respect to Relative Financial Ability and Concentrations of Low-Income Families

In addition to directing funds toward economically depressed areas and areas offering new programs, the Congress specified two more criteria for determining the distribution of funds relative financial ability and concentrations of low-income families or individuals:

> ...the State shall, in determining the amount of funds available under this Act which shall be made available to those applicants for funding, base such distribution on economic, social and demographic factors related to the need for vocational education among various populations and the various areas of the State, except that --
>
> (i) the State will use as the two most important factors in determining this distribution (I) in the case of local educational agencies, the relative financial ability of such agencies to provide the resources necessary to meet the need for vocational education in the areas they service and the relative number of concentration of low-income families or individuals within such agencies, and (II) in the case of other eligible recipients, the relative financial ability of such recipients to provide the resources to initiate or main tain vocational education programs to meet the needs of their students and the relative number or concentration of students whom they serve whose education imposes higher than average costs, such as handicapped students, students from low-income families, and students from families in which English is not the dominant language (P.L. 94482, Sec. 106(6)(5)(B)(i)).

1. Relative Financial Ability. For purposes of distributing VEA funds, federal regulations stipulated two definitions of relative fiscal capacity. First, states could employ measures of local property wealth per capita, typically the local tax base of an LEA divided by its total resident population. Alternatively, states could use a measure of total local tax effort, per capita local tax revenues divided by local per capita income.

In practice, both measures have proven unworkable for most states. Except for LEAs that are coterminous with county or municipal borders, the most current measures of resident population are for 1970, the most recent census for which school district data are available. School districts *per se* simply have no need for current population data, and collecting it would be quite expensive. As far as local tax effort is concerned, this measure is practically impossible to calculate except for a small number of LEAs that are perfectly coterminous with all other taxing jurisdictions within the LEA's borders. Consequently, most states measure relative financial ability in terms of equalized property value per unit of average daily attendance (ADA) or per unit of average daily membership (ADM). At the postsecondary level, where in many states there is no local funding, relative financial ability has been defined simply as state revenues per student.

Regressions analyzing the relationship between relative financial ability (property wealth per ADA) and allocations of federal funds found statistically significant results in only one of the twelve states, Washington. When we examined average revenues per student in high wealth LEAs versus low wealth LEAs, we found a mixed pattern. As Table V-3 displays, in Colorado, New York, and Pennsylvania federal revenues per student were higher in LEAs with above average wealth, a pattern directly contradicting federal directions. In California and Florida there was little difference in federal revenues per student between high-wealth and low-wealth LEAs. In the remaining seven states revenues per student were from 14 to 235 percent greater in LEAs with below average wealth.

In most states, the distribution of state and local revenues for vocational education completely swamps any equalizing tendency of federal funds. This is apparent when one compares the ratio of federal revenues per student in low wealth LEAs to revenues per student in high wealth LEAs with similar ratios for state and local revenues and total revenues. Table V-3A displays these three types of ratios for the twelve states. In most cases the ratio for federal revenues exceeds one, indicating that more revenue per student is concentrated in low wealth LEAs but the ratio for total revenues is less than one, indicating higher total revenues per student in high wealth LEAs. Consequently, the distribution of state and local funds more than offsets the federal funds.

2. Concentrations of Low Income Families. Neither the Act nor the regulations clearly defines a measure of low-income families or individuals. Rather OVAE instructs states to indicate clearly in their plans and accountability reports how they have computed the concentration of low-income families. Most states cannot measure the number of low-income families or individuals directly, at least not for recent years, because LEA boundaries are not coterminous with municipal or county boundaries, the government units for which income data are most readily available. Consequently, OVAE permits states to use proxies such as the number of students eligible for Title I or eligible for the School Lunch Program. States may also use data on Aid to Families with Dependent Children.

Table V-4 reports the results of regressions analyzing whether, other things equal, LEAs with higher concentrations of low-income famamilies (LIF) received more federal VEA funds.* In only four of the

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*Our measure of LIF relies on the Orshansky poverty index developed for the Social Security Administration in 1964 and modified by the Federal Interagency Committee in 1969. This index establishes a "poverty income threshold," based on such factors as family size, sex and age of family head, number of children under 18, and farm-non-farm residence.

Table V-3A

Ratios of Revenues per Student in Low Wealth LEAs to Revenues per Student in High Wealth LEAs Secondary, 1978-79

	Federal Revenues	State/Local Revenues	Total Revenues
CALIFORNIA	1.02	.91	.91
COLORADO COLORADO	.92	.91	.91
FLORIDA	1.03	1.19	1.19
ILLINOIS	1.24	.86	.87
KANSAS	1.27	1.22	1.22
NEW YORK	.40	N.A.	N.A.
OKLAHOMA	1.26	.84	.86
PENNSYLVANIA	.92	N.A.	N.A.
SOUTH DAKOTA	3.35	1.25	1.36
TEXAS	1.14	N.A.	N.A.
UTAH	1.70	1.08	1.16
WASHINGTON	1.23	.93	.94

Table V-4

Relationship Between Allocation of Federal Funds And Concentration of Low-Income Families Secondary, 1978-79

	120	130	140	150	Total Federal
CALIFORNIA	0	0	0	0	0
COLORADO	0	0	0	0	0
FLORIDA	0	0	0	0	0
ILLINOIS	0	0	0	0	0
KANSAS	0	0	0	0	0
NEW YORK	+***	+**	+**	+***	+***
OKLAHOMA	-	0	0	+***	0
PENNSYLVANIA	0	0	0	0	0
SOUTH DAKOTA	0	0	0	0	0
TEXAS	+**	0	0	+***	+***
UTAH	0	0	0	0	0
WASHINGTON	0	0	+	+*	0

+	significant with 90 percent confidence
*	significant with 95 percent confidence
**	signficant with 99 percent confidence
***	signficant with 99.9 percent confidence

twelve states did we find statistically significant positive relationships. These results change somewhat when LEAs are grouped under two classifications of below average and above average poverty. As Table II-5 displays, in eleven states total federal revenues per student were from 7 to 513 percent greater in LEAs with above average concentrations of poverty. In Utah, however, revenues per student in below average LEAs were only 87 percent of those in above average LEAs.

C. Allocations to Target Populations

P.L. 94-482 directs states to set aside 10 percent of the funds allocated under Subparts 2 and 3 for programs serving handicapped students and 20 percent for programs serving disadvantaged. Additionally, a portion of the disadvantaged setaside is to be reserved for students with limited English proficiency (LEP), the amount varying depending on the proportion of students age 15-24 statewide with limited English proficiency. Although P.L. 94-482 makdes no explicit mention of race, funds distributed must comply with Title VI of the Civil Rights Act. Thus, while there is no requirement that states allocate more federal VEA funds to LEAs with high concentrations of minorities, procedures that resulted in significantly lower allocations to such districts would be suspect. Therefore, in this section we examine distributions with respect to race, as well as handicapped and disadvantaged.

Table V-5

Relationship Between Federal Revenues per Student and Concentrations of Low-Income Families Secondary, 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	Ratio of (3) to (2)
CALIFORNIA	24.96	17.16	24.18	1.41
COLORADO	39.84	28.53	33.09	1.16
FLORIDA	10.15	9.61	12.27	1.28
ILLINOIS	21.76	21.95	26.64	1.21
KANSAS	7.75	32.86	55.81	1.70
NEW YORK	95.23	17.44	106.95	6.13
OKLAHOMA	32.50	30.24	35.93	1.19
PENNSYLVANIA	167.23	55.63	79.06	1.42
SOUTH DAKOTA	96.34	27.39	34.51	1.26
TEXAS	88.32	44.49	51.33	1.15
UTAH	43.64	42.42	36.81	.87
WASHINGTON	12.03	20.11	21.48	1.07

Most states were not able to provide us with data that reported the distribution of setaside funds separate from allocations under Subparts 2 and 3. However, if other things equal, states are directing more VEA funds to LEAs with higher concentrations of target populations, then regression analysis should find significant relations between the amount of total Subpart 2 funds received and the percent handicapped or disadvantaged. In fact, in some respects, analyzing total Subpart 2 funds is preferable to analyzing only the setaside amount (assuming it were available) because this permits checking for any substitution effect, by which an LEA receiving a greater setaside allocation would receive a smaller allocation of unrestricted funds.

1. Handicapped. Table V-6 summarizes the results of regressions examining the relationship between allocations of federal funds and the percentage of handicapped students. In six of the twelve states, there are statistically significant positive relationships for at least one category of funds. However, we found significant positive relationships for Subpart 2 and total VEA funds in only three states.

When we compared allocations per student in LEAs with below average concentrations of handicapped students with allocations in above average LEAs (Table V-7), we found that in eight states expenditures per student were from 10 to 400 percent greater in LEAs with above average concentrations of handicapped students, but in three others, expenditures in above average LEAs were considerably less than expenditures in LEAs with below average concentrations.

Table V-6

Relationship Between Allocation of Federal Funds And Concentrations of Handicapped Students Secondary, 1978-79

	120	130	140	150	Total Federal
CALIFORNIA	+***	+***	+***	+***	+***
COLORADO	0	0	0	0	0
FLORIDA	0	0	0	0	0
ILLINOIS	+*	0	0	0	+
KANSAS	0	0	0	0	0
NEW YORK	+***	+***	+***	+***	+***
OKLAHOMA	0	0	0	0	0
PENNSYLVANIA	0	+	-*	-*	0
SOUTH DAKOTA	0	+*	0	0	0
TEXAS	0	+***	0	0	0
UTAH	0	0	0	0	0
WASHINGTON	N.A.	N.A.	N.A.	N.A.	N.A.

+	significant with 90 percent confidence
*	significant with 95 percent confidence
**	significant with 99 percent confidence
***	significant with 99.9 percent confidence

Table V-7

Relationship Between Federal Revenues per Student And Concentrations of Handicapped Students Secondary, 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	Ratio of (3) to (2)
CALIFORNIA	24.96	17.61	26.60	1.51
COLORADO	39.84	30.63	25.12	.82
FLORIDA	10.15	10.38	11.40	1.10
ILLINOIS	21.76	19.77	29.11	1.47
KANSAS	7.75	53.47	31.96	.60
NEW YORK	95.23	61.49	116.04	1.89
OKLAHOMA	32.50	25.81	42.83	1.66
PENNSYLVANIA	167.23	52.37	77.57	1.48
SOUTH DAKOTA	96.34	14.98	74.70	4.97
TEXAS	88.32	45.42	51.27	1.13
UTAH	43.64	44.68	34.97	.78
WASHINGTON	2.03	N.A.	N.A.	N.A.

We should note that the absence of positive findings does not necessarily indicate that a state failed to comply with federal law. Presently, regulations do not require states to allocate setasides to LEAs on the basis of concentrations of handicapped students or to weight handicapped students more heavily in weighted pupil distribution systems. Some states do incorporate these procedures, but others do not. Indeed at least one state finds it convenient to allocate handicapped setaside funds to special state institutions for the handicapped rather than to LEAs. Not only does this practice permit easier accounting but it also eliminates problems caused by trying to match excess costs. Because these are specialized facilities, the entire cost of operation may be considered "excess" and total state expenditures in these facilities may be applied to the match.

2. Disadvantaged. Table V-8 summarizes the results of regressions analyzing the relationship between allocations of funds and an LEA's percentage of disadavantaged students. We found some significant positive relationships in four of nine states (data on disadvantaged students were unavailable for California, Utah, and Washington). Comparing expenditures per student in LEAs with above average and below average concentrations of disadvantaged students, we found that in eight states expenditures per student were from 5 to 200 percent greater in LEAs with above average concentrations of disadvantaged students (Table V-9).

As with the handicapped setaside, there is no requirement that the disadvantaged setaside or funds allocated under Subpart 4 be allocated to LEAs with higher concentrations of disadvantaged students. Our anal-

Table V-8

Relationship Between Allocation of Federal Funds And Concentrations of Disadvantaged Students Secondary, 1978-79

	120	130	140	150	Total Federal
CALIFORNIA	N.A.	N.A.	N.A.	N.A.	N.A. N.A.
COLORADO	0	0	0	0	0
FLORIDA	0	0	0	0	0
ILLINOIS	+*	0	0	+*	+*
KANSAS	+*	0	0	0	+*
NEW YORK	0	-**	-	-*	0
OKLAHOMA	+***	+	0	-***	+***
PENNSYLVANIA	+	0	+**	0	+*
SOUTH DAKOTA	0	0	0	0	0
TEXAS	0	0	0	0	0
UTAH	N.A.	N.A.	N.A.	N.A.	N.A.
WASHINGTON	N.A.	N.A.	N.A.	N.A.	N.A.

+ significant with 90 percent confidence
* significant with 95 percent confidence
** significant with 99 percent confidence
*** significant with 99.9 percent confidence

Table V-9

Relationship Between Federal Revenues per Student And Concentrations of Disadvantaged Students Secondary, 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	Ratio of (3) to (2)
CALIFORNIA	N.A.	N.A.	N.A.	N.A.
COLORADO	39.84	18.49	39.28	2.12
FLORIDA	10.15	10.57	11.05	1.05
ILLINOIS	21.76	18.86	29.15	1.56
KANSAS	7.75	19.36	56.30	2.91
NEW YORK	95.23	93.51	92.27	.99
OKLAHOMA	32.50	15.68	49.42	3.15
PENNSYLVANIA	167.23	47.53	84.87	1.79
SOUTH DAKOTA	96.34	24.00	37.16	1.55
TEXAS	88.32	43.84	53.02	1.21
UTAH	N.A.	N.A.	N.A.	N.A.
WASHINGTON	N.A.	N.A.	N.A.	N.A.

ysis, therefore, provides indicators of states' efforts to target funds, but it does not indicate compliance or non-compliance with federal law. Moreover, states are free to concentrate funds in a few LEAs or institutions, should they choose to do so. For example, some states allocate all or substantial portions of Subpart 4 funds and disadvantaged setaside to vocational programs in correctional institutions. Once again, this practice simplifies accounting, as well as compliance with the excess cost provisions.

3. Limited English Proficiency (LEP). The funds available for LEP programs represent a relatively small portion of total VEA funds. A setaside within a setaside, it is unusual for LEP funds to exceed two percent of total VEA funds, and in most states the LEP share is even less. Consequently, we did not expect to find any strong relationship between allocations of federal funds and concentrations of LEP students. Regression results confirmed this hypothesis. In no state did we find a significant positive relationship.

In five out of seven states, federal revenues per student were higher in LEAs with above average concentrations of LEP students (Table V-10). However, it is doubtful that these higher expenditures result from the LEP setaside. Rather, the high correlation between concentrations of disadvantaged and concentrations of LEP students probably accounts for the difference.*

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* Statistically significant correlations between LEP and percent disadvantaged were .43 in California, .18 in Colorado, .14 in Illinois, .39 in South Dakota, and .09 in Texas. Correlations were not statistically significant in Kansas and Utah. See Appendix.

Table V-10

Relationship Between Federal Revenues per Student And Concentrations of LEP Students Secondary, 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	Ratio of (3) to (2)
CALIFORNIA	24.96	19.04	24.97	1.31
COLORADO	39.84	25.75	31.27	1.21
FLORIDA	N.A.	N.A.	N.A.	N.A.
ILLINOIS	21.76	23.74	26.06	1.10
KANSAS	7.75	43.45	47.03	1.08
NEW YORK	N.A.	N.A.	N.A.	N.A.
OKLAHOMA	N.A.	N.A.	N.A.	N.A.
PENNSYLVANIA	N.A.	N.A.	N.A.	N.A.
SOUTH DAKOTA	96.34	35.48	14.02	.40
TEXAS	88.32	44.55	57.58	1.29
UTAH	43.64	40.47	37.51	.93
WASHINGTON	N.A.	N.A.	N.A.	N.A.

4. Minorities. Because the percentage of minority students in an LEA is highly correlated with the percentage of disadvantaged students, the percentage of minority students was not included as a variable in the regressions. Moreover, there was no reason to expect a statistically significant result because the legislation does not require targeting on minority students. Nevertheless, it is important to examine whether significantly less money is being allocated to LEAs with high concentrations of minority students.

Table V-11 compares federal revenues per student in LEAs with below average and above average concentrations of minority students. In ten states, outside the largest cities, revenues per student are on the average from 3 to 138 percent higher in LEAs with above average concentrations of minorities. Only in Utah do LEAs with above average concentrations of minorities fare poorly, a finding that is somewhat softened when Salt Lake City is included rather than excluded.

D. Allocations to Postsecondary and Adult Programs

The 1976 Amendments reserved for the first time a portion of the allocations under Subparts 2 and 3 for postsecondary and adult programs. Section 110(c) states:

> For each fiscal year, at least 15 per centum of each State's allotment under section 103 shall be used to pay 50 per centum of the cost of vocational education for (1) persons who have completed or left high school and who are enrolled in organized programs of study for which credit is given toward an associate or other degree, but which programs are not designed as bacca-

Table V-11

Relationship Between Federal Revenues per Student And Concentrations of Minorities Secondary, 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	Ratio of (3) to (2)
CALIFORNIA	24.96	15.54	27.65	1.78
COLORADO	39.84	26.64	30.05	1.13
FLORIDA	10.15	10.69	10.98	1.03
ILLINOIS	21.76	18.55	30.75	1.66
KANSAS	7.75	37.36	50.96	1.36
NEW YORK	95.23	78.05	99.63	1.28
OKLAHOMA	32.50	29.13	37.96	1.30
PENNSYLVANIA	167.23	56.90	66.35	1.17
SOUTH DAKOTA	96.34	24.03	57.30	2.38
TEXAS	88.32	40.57	55.70	1.37
UTAH	43.64	47.57	27.93	.59
WASHINGTON	N.A.	N.A.	N.A.	N.A.

> laureate or higher degree programs, and (2) persons who have already entered the labor market, or are unemployed, or who have completed or left high school and who are not described in paragraph (1). (P.L 94-482, Sec. 110(c)).

Fifteen percent is the *minimum* amount states are to allocate to postsecondary and adult education. States may -- and many do -- allocate more, but except for this direction, both the legislation and regulations are silent on what procedures states should employ to divide funds among secondary, postsecondary, and adult programs.

Table V-12 displays the proportions of total federal outlays for postsecondary and adult programs in our sample of 12 states. Averaging about 22 percent for the nation as a whole, the percentage of postsecondary and adult expenditures ranged from as little as 14 percent in Pennsylvania to over 50 percent in Colorado. We should note that states with percentages below the 15 percent minimum are *not* out of compliance. The setaside applies only to allocations under Subparts 2 and 3, although states may -- and many do -- allocate portions of Subparts 4 and 5 to postsecondary and adult programs.

For several states, the issue of the division of funds between secondary and postsecondary levels is controversial and politically charged. Historically, in most states the secondary level has dominated vocational education and received most of the federal VEA funds, but as vocational education has grown at the postsecondary level, especially among community colleges, postsecondary officials have tried to secure a larger share of the federal allocation. Postsecondary vocational educators claim that program quality is higher and that they are in a

Table V-12

Outlays of Federal VEA Funds for
Postsecondary and Adult Programs as a Percentage of Total Outlays
1978-79

CALIFORNIA	27.8%
COLORADO	56.73
FLORIDA	17.3
ILLINOIS	41.9
KANSAS	35.8
NEW YORK	17.9
OKLAHOMA	23.4
PENNSYLVANIA	14.3
SOUTH DAKOTA	35.4
TEXAS	28.4
UTAH	25.5
WASHINGTON	32.5

Source: Vocational Education Data System better position to provide the more technical training that today's employers demand. Thus, they can address more effectively than secondary programs Congress' concern that federal funds support programs addressing new and emerging manpower needs. Secondary educators do not necessarily refute such claims but counter that needs are greater at the secondary level. Many of their students will not pursue higher education and therefore every effort must be made to enhance their employment prospects before they leave high school. Moreover, they argue that quality of programs in vocational high schools and area vocational schools often equals or exceeds that of postsecondary programs. Therefore, secondary programs are not inherently inferior, and federal funds would be best used to upgrade less effective programs.

There are a number of unproven assumptions and untested claims in the arguments of both sides, but the debate continues in many states and the problem of how to divide funds fairly between the two levels remains troublesome. Generally, states have adopted one of three approaches. First, several states simply limit postsecondary and adult allocations to the 15 percent setaside. Second, a number of states allocate a larger percentage to postsecondary programs, with the proportion determined arbitrarily by political agreements between the two levels. Finally, a few states base the division on ratios of vocational education enrollment, sometimes weighted to reflect differences in program costs between the two levels.

A number of difficulties impede developing equitable procedures for dividing federal funds between secondary and postsecondary programs.

Even if there was agreement, and in many states there is not,that the division should be based on each level's relative share of vocational education enrollment weighted for differences in costs and proportions of target populations, determining a fair split would not be easy. In most states, there is no measure of student contact hours at both levels that would permit comparing and equating each level's vocational education enrollment. Even when states calculate vocational average daily attendance (VADA) at both levels, the procedures for doing so may differ and not be easily reconciled. For example, in California, one unit of postsecondary VADA is equal to 525 student contact hours. One unit of secondary VADA, however, varies from about 830 to 1000 student contact hours, depending on the length of the school day in the LEA. Further compounding comparisons of enrollments are different procedures for defining and identifying handicapped and disadvantaged students. Identifying "economically disadvantaged" is particularly troublesome for postsecondary programs whose students are typically adults no longer under the care of their parents. Consequently, income based measures or measures of students eligible for financial aid include large numbers of students from relatively well-off families.

Even when comparable measures of enrollment are available, there is often debate over what enrollments to consider for dividing funds among secondary, postsecondary and adult programs. Postsecondary representatives generally argue that enrollments in non-occupational consumer and homemaking should not be counted for purposes of dividing allocations under Subparts 2, 3, and 4. Many also argue that enrollments in industrial arts should be ignored; they point out that although the legislation permits expenditures for industrial arts under Subpart 2, it does not require spending for this purpose and no mention of industrial arts is made under Subparts 3 and 4. As enrollments in both of these programs are predominantly secondary, their exclusion from consideration in enrollment based procedures for dividing funds greatly diminishes the secondary allocations. Consequently, secondary officials strongly resist excluding these students, especially those enrolled in industrial arts for whom there is no other source of funds, such as Subpart 5 monies for consumer and homemaking.

A few states recognize differences in costs between secondary and postsecondary programs in determining their respective allocations. However, this procedure is difficult for most states to implement. Often postsecondary systems employ accounting systems that are different from the secondary system's, making comparisons of costs suspect, if not impossible. Where accounting is comparable, procedures for prorating such expenditures as counseling, clerical salaries, administrative costs, and building maintenance are so ambiguous that each side remains suspicious of the other's figures. This has led some states to make cost adjustments based only on those expenditures which can be easily verified and directly attributed to vocatonal education. For example, California is considering basing cost adjustments between secondary and postsecondary programs only on differences in expenditures for teachers' salaries and benefits.

Costs per student are typically higher for postsecondary programs, and consequently, incorporating cost adjustments in procedures for dividing funds favors the postsecondary level. Secondary officials argue that this is unfair. Although costs may be greater at the postsecondary level, the postsecondary system also enjoys greater resources to meet costs. Therefore, a more equitable procedure would consider differences in relative financial ability between the two systems, as well as differences in costs. A sound principle, it is nevertheless not easily implemented, for it depends on a comparable measure of relative financial ability for both systems. The simplest measure is probably total state and local expenditures per ADA, and in states funding the bulk of secondary and postsecondary expenditures from state sources this may be a satisfactory approach. However, where local property taxes figure prominently in the resources of one or both systems, expenditures per ADA will not reflect possibly great disparities in relative tax effort. If both systems rely heavily on local property taxes, then a measure of property value per ADA, weighted to reflect differences in total ADA among LEAs, might provide an acceptable measure of relative financial ability. Finally, if only one system relies on local property taxes while the other is largely state funded, a comparable measure is difficult to design.

To summarize, a number of states have made significant progress toward developing systematic procedures for allocating federal VEA funds between secondary and postsecondary programs. However, there are significant obstacles to achieving a satisfactory arrangement, and many states have not moved beyond arbitrary allocations or the 15 percent minimum setaside. In this regard, the setaside is not particularly effective. Not only does it provide no incentive for exploring more rational procedures but it may also act as an excuse for doing nothing. Thus, in several states the 15 percent minimum appears to have become the maximum.

E. Postsecondary Instrastate Allocations

All of the factors affecting the allocation of federal VEA funds at the secondary level -- relative financial ability, concentrations of low-income families or individuals, etc. -- are also to be used for distributing funds at the postsecondary level. However, applying these factors at the postsecondary level is even more difficult than at the secondary level. Several problems arise. First, in many states, postsecondary programs are funded almost entirely from state sources of revenue; they receive no local funds. Consequently, the conventional measures of relative financial ability, assessed value per capita or total local tax effort, are not relevant. OVAE has suggested that when programs receive no local funding, state expenditures per student be used as the measure of relative financial ability. Such a measure, however, fails to recognize that there may be legitimate reasons for expenditures per student to differ among postsecondary institutions that are fully state funded. These differences may reflect differences in costs resulting from differences in economies of scale (e.g., urban vs. rural), types of program offerings, costs of living, administrative overhead, and so forth.

Second, in many states, the attendance area of a particular postsecondary institution has no geographic boundaries; rather the institution is open to anyone residing in the state. In this case, such measures as local unemployment rate and concentrations of low-income families, which have geographic limits, cannot be measured. Third, in some states, there are so few postsecondary institutions that making fine distinctions based on relative financial ability and other factors is not a sensible approach to allocating funds, especially when these factors are not easily defined and measured. Finally, as previously noted, even the identification of disadvantaged and handicapped students poses special problems for postsecondary programs.

For these reasons, it is very difficult to analyze the distribution of funds to postsecondary programs with respect to the various factors that are supposed to determine VEA allocations. We were able to perform this analysis in only six of the twelve states in our sample, and given these problems with the relevance of certain factors and the difficulties of obtaining accurate data for them at the postsecondary level, we are not very confident of our results. Therefore, the reader should regard our findings as tentative at best.

Considering first the relationship between VEA allocations and relative financial ability, we attempted to use the measure suggested by OVAE, total expenditures per student in each postsecondary eligible recipient. For this figure we relied on information submitted to the National Center for Educational Statistics (NCES) in the annual Higher

Education General Information Survey (HEGIS). We note that even if a state were employing this factor, it would probably be using its own data and not necessarily that supplied to NCES. Thus, our analysis suffers from whatever inaccuracies exist within the data available from NCES. In any event, regression analysis revealed none of the statistically significant negative relationships one would expect to find if this factor influenced VEA allocations.

Table V-13 summarizes the results of analyzing the ratio of federal revenues per student in LEAs with below average wealth to revenues in LEAs with above average wealth. In all six states federal VEA revenues per student were higher in the upper half of the distribution with above average relative financial ability. Consequently, there is no evidence that relative fianacial ability figures prominently in the allocation of VEA funds at the postsecondary level.

Table V-14 displays the results of regressions analyzing the relationship between VEA allocations per student and concentrations of low-income families. Although there are isolated instances of significant positive relationships, two of the six states exhibit no positive effects of this variable on allocations, and a third shows a positive effect only for funds allocated under Subpart 4. Displaying the results for the analysis of this factor by quartile, Table V-15 shows that in four of the five states (data were not available for Pennsylvania) VEA revenues per student were, on the average, from 15 to 300 percent higher in LEAs with high concentrations of low-income families than in LEAs with low

Table V-13

Relationship Between Federal Revenues per Student and Relative Financial Ability Postsecondary 1978-79

	(1) Largest City	(2) Above Average Concentration	(3) Below Average Concentration	(4) Ratio of (3) to (2)
CALIFORNIA	$28.47	$30.91	$30.01	.97
COLORADO	265.18	103.00	56.27	.55
FLORIDA	36.60	54.69	34.62	.63
ILLINOIS	55.74	33.59	29.31	.87
KANSAS	N.A.	19.21	17.42	.91
PENNSYLVANIA	55.68	136.99	77.04	.52

Table V-14

Relationship Between Allocations of Federal Funds and Concentrations of Low-Income Families Postsecondary 1978-79

	120	130	140	150	Total Federal
CALIFORNIA	0	0	+	0	0
COLORADO	+	0	0	0	+
FLORIDA	0	0	0	0	0
ILLINOIS	0	0	-*	0	-*
KANSAS	+**	0	0	0	+***
PENNSYLVANIA	0	0	0	0	0

Table V-15

Relationship Between Federal Revenues per Student and Concentration of Low-Income Families Postsecondary 1978-79

	(1)	(2)	(3)	(4)
	Largest City	Below Average Concentration	Above Average Concentration	Ratio of (3) to (2)
CALIFORNIA	$28.47	$28.43	$32.64	1.15
COLORADO	265.18	60.79	110.08	1.81
FLORIDA	36.60	39.24	52.72	1.34
ILLINOIS	55.74	31.94	31.57	.99
KANSAS	N.A.	7.96	32.05	4.03
PENNSYLVANIA	55.68	N.A.	N.A.	N.A.

concentrations. Moreover, if Chicago had not been excluded from the quartiles in Illinois, the ratio would have been greater than 1.0. Thus, while the regressions detected no systematic relationship between VEA allocations and poverty at the postsecondary level, the quartile analysis indicated that there was some greater concentration of VEA funds in lower income LEAs.

Regressions analyzing the relationship between VEA allocations and concentrations of disadvantaged students (Table V-16) found consistently positive results in California but none in the other four states (data were not available for Florida). Quartile analysis on the same factor (Table V-17) revealed that in three of the four states revenues per student were from 7 to 89 percent greater in LEAs with high concentrations of disadvantaged students.

With respect to concentrations of handicapped students, regression analysis found no statistically significant positive relationships. However, when LEAs were ranked and divided into quartiles, revenues per student were from 43 to 128 percent greater, on the average in the top half of the distribution with higher concentrations of handicapped student (Table V-18).

With respect to local unemployment rates, regressions found no significant relationships. Quartile analysis (Table V-19) found mixed results. In three of the six states, VEA revenues per student were from 19 to 115 percent greater in LEAs with above average unemployment rates, but in three others VEA revenues per student in the LEAs with above average unemployment were from 81 to 91 percent of average revenues per student

Table V-16

Relationship Between Allocations of Federal Funds and Concentrations of Disadvantaged Students Postsecondary 1978-79

	120	130	140	150	Total Federal
CALIFORNIA	+***	+	+**	N.A.	+**
COLORADO	0	0	0	0	0
FLORIDA	N.A.	N.A.	N.A.	N.A.	N.A.
ILLINOIS	0	0	0	0	0
KANSAS	0	0	0	0	0
PENNSYLVANIA	0	+*	0	0	0

Table V-17

Relationship Between Federal Revenues per Student and Concentrations of Disadvantaged Students Postsecondary 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	(4) Ratio of (3) to (2)
CALIFORNIA	$28.47	N.A.	N.A.	N.A.
COLORADO	265.18	$81.45	$86.98	1.07
FLORIDA	36.60	N.A.	N.A.	N.A.
ILLINOIS	55.74	32.54	30.73	.94
KANSAS	N.A.	13.65	25.75	1.89
PENNSYLVANIA	55.68	77.40	106.07	1.37

Table V-18

Relationship Between Federal Revenues per Student and Concentrations of Handicapped Students Postsecondary 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	(4) Ratio of (3) to (2)
CALIFORNIA	$28.47	$22.08	$38.87	1.76
COLORADO	265.18	92.31	41.09	.45
FLORIDA	36.60	N.A.	N.A.	N.A.
ILLINOIS	55.74	29.44	42.03	1.43
KANSAS	N.A.	13.33	25.93	1.95
PENNSYLVANIA	55.68	73.78	168.33	2.28

Table V-19

Relationship Between Federal Revenues per Student and Local Rates of Unemployment Postsecondary 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	(4) Ratio of (3) to (2)
CALIFORNIA	$28.47	$27.65	$32.90	1.19
COLORADO	265.18	50.59	108.54	2.15
FLORIDA	36.60	50.92	41.51	.82
ILLINOIS	55.74	25.27	52.97	2.10
KANSAS	N.A.	19.39	17.66	.91
PENNSYLVANIA	55.68	101.29	82.42	.81

in the LEAs with below average unemployment.

Regressions analyzing the relationship between VEA allocations and concentrations of student with limited English proficiency found no consistently positive results. In the quartile analysis, results were mixed, with two of four states displaying higher revenues per student in LEAs with above average concentrations of students with limited English proficiency (Table V-20).

Finally, Table V-21 summarizes the results of ranking LEAs by percent minority and dividing them into enrollment-weighted quartiles. In five of the six states, revenues per student were from 26 to 202 percent greater in LEAs with above aberage concentrations of minorities. In the sixth, Illinois, the results are somewhat understated by the exclusion of Chicago from the quartile calculations.

To summarize, for allocations of VEA funds to postsecondary LEAs, there is no evidence that relative financial ability has been a significant factor in determining allocations. However, there is weak but postive evidence of a relationship between revenues per student and concentrations of low-income families, disadvantaged students, and handicapped students. The relationship with local unemployment rates was mixed, positive in some states but negative in others. We stress that these findings should be considered cautiously. They are based on a relatively small number of states. More importantly, whether accurate or not, the findings underscore the need for Congress to consider more carefully the kinds of factors that would be more appropriate for deter-

Table V-20

Relationship Between Federal Revenues per Student
and Concentrations of Students with Limited English Proficiency
Postsecondary 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	(4) Ratio of (3) to (2)
CALIFORNIA	$28.47	$25.81	$36.20	1.40
COLORADO	265.18	81.94	85.98	1.05
FLORIDA	36.60	N.A.	N.A.	N.A.
ILLINOIS	55.74	32.64	25.31	.78
KANSAS	N.A.	24.21	12.57	.52
PENNSYLVANIA	55.68	N.A.	N.A.	N.A.

Table V-21

Relationship Between Federal Revenues per Student
and Concentration of Minority Students
Postsecondary 1978-79

	(1) Largest City	(2) Below Average Concentration	(3) Above Average Concentration	(4) Ratio of (3) to (2)
CALIFORNIA	$28.47	$26.20	$34.29	1.31
COLORADO	265.18	42.19	127.37	3.02
FLORIDA	36.60	40.50	51.07	1.26
ILLINOIS	55.74	37.65	27.55	.73
KANSAS	N.A.	11.91	27.00	2.27
PENNSYLVANIA	55.68	69.40	107.36	1.54

mining postsecondary allocations, especially in those states where postsecondary LEAs receive no local dollars and where LEA boundaries are not geographically defined. In these instances, the most simple and sensible approach would be to allocate funds for special needs populations on the basis of relative concentration of these students within eligible recipients and to distribute the remainder on the basis of equal amounts per unit of vocational ADA.

F. Allocation By Stratum

Although P.L. 94-482 makes no special provisions for LEAs located in urban or rural areas, it is interesting to examine the percentages of federal funds allocated to urban and rural recipients. Costs are generally higher in large cities and in small rural LEAs. In the cities, high labor costs, greater numbers of disadvantaged students, severe problems of theft and vandalism, and a preponderence of antiquated facilities and equipment combine to drive up costs of delivering high quality vocational education. In rural areas, on the other hand, sparse settlements, a dearth of qualified teachers, and high transportation costs impede offering a wide variety of vocational programs. Consequently, given Congress' aim to concentrate federal spending on aiding target populations and improving programs, one would expect states to allocate disproportionately larger shares of VEA monies to rural areas and the larger urban LEAs.

Table V-22 and V-23 displays the relative allocation of VEA funds

Table V-22

Index of Proportional Distribution of VEA Funds by Location of LEA Secondary, 1978-79

	Largest City	Suburban Ring of Largest City	Large* Cities	Small* Cities	Rural	State Average
CALIFORNIA	1.17	1.18	1.11	.86	.84	1.00
COLORADO	1.18	.84	.90	1.17	.99	1.00
FLORIDA	.95	--	.85	1.11	1.46	1.00
ILLINOIS	.91	1.01	.79	1.19	.81	1.00
KANSAS	.24	.38	.17	1.61	1.32	1.00
NEW YORK	1.01	.82	1.42	.87	.82	1.00
OKLAHOMA*	1.00	--	1.32	1.03	.94	1.00
PENNSYLVANIA*	2.06	--	1.28	.72	.75	1.00
SOUTH DAKOTA	2.50	.14	--	.90	.82	1.00
TEXAS	1.75	.91	1.18	.91	.77	1.00
UTAH*	.91	--	1.36*	.93*	1.12	1.00
WASHINGTON*	.60	--	1.32	1.09	.82	1.00

* For these four states, only four strata could be constructed -- largest city, urban, suburban, and rural. Consequently, figures reported under large cities and small cities are urban and suburban, respectively, and are not comparable to the other states.

Table V-23

Index of Proportional Distribution of VEA Funds by Location of LEA Postsecondary, 1978-79

	Largest City	Suburban Ring of Largest City	Large* Cities	Small* Cities	Rural	State Average
CALIFORNIA	.91	.98	1.04	.98	1.55	1.0
COLORADO	1.97	.44	.85	.72	.99	1.0
FLORIDA	.81	N.A.	.73	1.30	2.13	1.0
ILLINOIS	1.59	.62	.46	1.29	1.69	1.0
KANSAS	N.A.	.38	3.75	.83	.64	1.0
PENNSYLVANIA	.53	N.A.	N.A.	N.A.	N.A.	1.0

to secondary and postsecondary LEAs of different sizes. They report an "index of proportional distribution," which is simply the LEA's percentage of total statewide federal funds divided by its percentage of the state's population. For example, an LEA with 10 percent of the federal money and only eight percent of the state's population would score 1.25 on this index (10: 8 = 1.25). Similarly, an LEA with three percent of the VEA funds and four percent of the state's population would score .75 (3: 4 = .75). Therefore, LEAs with scores less than 1.0 are receiving disproportionately smaller shares than they would receive if funds were allocated strictly on a per capita basis. LEAs with scores greater than 1.0 are receiving disproportionately greater shares.

No clearly consistent pattern for secondary LEAs emerges from Table V-21. Los Angeles, Denver, Rapid City, and Salt Lake City all fare better than the average LEA, while Chicago and Wichita do not do as well. Rural LEAs receive disproportionately large shares in Kansas and Utah, a proportionate share in California, and below average shares in Colorado, Illinois, and South Dakota. In short, although the results are mixed, the charge that P.L. 94-482 favors large urban LEAs is not supported by the data. Similarly, results for postsecondary LEAs (Table V-23) exhibit no clearly consistent patterns.

G. Relating Distributional Outcomes to Allocation Procedures

In an earlier report to N.I.E., the Project on National Vocational Education Resources examined the types of allocation formulas and other procedures states employed to distribute funds to LEAs.* That report distinguished among three general types of allocation formulas that states were using in 1978-79: 1) a tabular method, 2) a reimbursement rate equation, and 3) a weighted points method. The first, the tabular method, consisted simply of a table of point scores that listed amounts of VEA funds an LEA would receive for a particular score. The derivation of the table was not explained, and no clear rationale existed for the system. The second, the reimbursment rate equation, determined the percentage of an LEA's expenditures that the state would reimburse depending on total points scored on such various factors as relative financial ability, concentrations of low-income families, etc. Although this method reimburses a higher percentage of a needier LEA's expenditures than a less needy LEA, it does not necessarily allocate a greater amount of funds, because the needier LEA's expenditures may be significantly less than less needy LEAs. The third, the weighted points method, allocates funds on each recipient's total weighted point score as a proportion of total points earned by all recipients in the state. Although superior to the other two, it suffers from several shortcomings, most importantly the difficulty of properly incorporating relative financial ability directly in the weighting procedure.

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* Charles S. Benson, E. Gareth Hoachlander, and Robert Polster, Analysis of Distribution Procedures Used by States to Distribute Federal Funds for Vocational Education, Berkeley: University of California, Project on National Vocational Education Resources, School of Education, 1980.

Our analysis of the actual distribution of federal funds to LEAs in the states examined to date confirms earlier conclusions about the defects in the various allocation procedures used by the states. Table V-24 summarizes the results of the regression analysis and the ratios of expenditures per student in LEAs above and below the statewide average value for each factor that is supposed to influence the distribution of funds. Seven states, California, Florida, Illinois, Kansas, Oklahoma, South Dakota, and Texas satisfied all factors on at least one measure of each factor although even in most of these states regression analysis produced no statistically significant results. All of these states employ weighted student methods.

In 1978-79 Utah used a very limited version of the weighted points method, excluding any measures of handicapped, disadvantaged, or LEP students. Not surprisingly, therefore, actual distributions show no relationship to these measures. The formula used as a proxy for concentrations of low-income families the number of K-12 children qualifying for free or reduced lunches. Apparently this measure bears no relationship to the Orshansky measure employed in our analysis for there is no indication that allocations are greater in LEAs with high concentrations of poverty.

Results for Colorado confirm the major defect of percentage rate reimbursement methods that can result in higher amounts of funds per

Table V-24

Summary of the Relationship Between Federal Allocations and Various Criteria For Determining Distributions Secondary, 1978-79

	Unemployment Rate		Relative Financial Ability		Low-Income Families		Handicapped		Disadvantaged		LEP
	Regr.	Ratio	Regr.	Ratio	Regr.	Ratio	Regr.	Ratio	Regr.	Ratio	Ratio Only
CALIFORNIA	0	+	0	+	0	+	+	+	N.A.	N.A.	+
COLORADO	0	+	0	-	0	+	0	-	0	+	+
FLORIDA	0	+		+	0	+	0	+	0	+	N.A.
ILLINOIS	+	+	0	+	0	+	+	+	+	+	+
KANSAS	0	+	0	+	0	+	0	-	+	+	+
NEW YORK	0	+	0	-	+	+	+	+	0	-	N.A.
OKLAHOMA	0	+	0	+	0	+	0	+	+	+	N.A.
PENNSYLVANIA	0	+	0	-	0	+	0	+	+	+	N.A.
SOUTH DAKOTA	0	+	0	+	0	+	0	+	0	+	-
TEXAS	0	+	0	+	+	+	0	+	0	+	+
UTAH	0	-	0*	+*	0	-	0	-	N.A.	N.A.	-
WASHINGTON	0	+	+	+	0	0	N.A.	+	N.A.	N.A.	N.A.

*Because Utah equalizes the influence of differences in assessed value per student in the distribution of general state aid for education, this measure is not relevant.

student being allocated to LEAs with greater relative financial ability. Note that on the average in Colorado, federal VEA funds per student are higher in LEAs with above average wealth.

H. Conclusions

This analysis of intrastate distributions of VEA funds leads to a number of conclusions.

1. As of 1978-79, for both secondary and postsecondary allocations, most states had not adopted mathematically sound distribution formulas that specified systematic linear relationships between VEA allocations and the various factors that Congress had identified for determining allocations.

2. At the secondary level, 7 of the 12 states studied did, on the average, direct more VEA revenues per student to LEAs with below average relative financial ability, above average unemployment rates, and above average concentrations of low-income families. However, in these states the pattern was not consistent across all LEAs.

3. At the postsecondary level, none of the six states studied showed the expected results on all three factors when less rigorous methods of analysis by enrollment weighted quartiles were employed. Results were mixed when factors are examined individually.

4. For both levels, and especially for postsecondary, there are serious difficulties in obtaining data for LEAs on the factors specified in law and regulations. In some cases, a particular factor is not e-

specially appropriate (e.g., relative financial ability at the post-secondary level) and in others, data simply were not available for LEAs whose boundaries are not coterminous with municipal or county borders.

5. Even when states technically satisfied the instructions to concentrate resources in LEAs with particular characteristics, the degree to which they met these requirements varied greatly. For example, on the average, Illinois allocated 24 percent more per student to LEAs with below average relative financial ability, while South Dakota allocated 235 percent more.

6. Where some federal funds were allocated in accordance with federal intentions, the effects of these allocations were often offset by the distribution of state and local funds.

CHAPTER VI

Funds Distribution Further Considered: Services by Function and by Client Population Served

As we indicated in Chapter I, Federal appropriations for vocational education are passed for designated purposes. Section 120 money is for support of instructional programs of various kinds and for meeting part of the costs of various supporting services. Section 130 money is for the purposes of research, exemplary and innovative programs, curriculum development, guidance and counseling, pre-service and in-service training, and grants to overcome sex bias. Section 140 money is used for special programs for the disadvantaged, and Section 150 money is designated for programs in consumer and homemaking education.

In addition, P.L. 94-482 requires that portions of federal allotments among the states shall be devoted to national priority programs. Thus, 10 percent of federal grants are to be used to pay for the excess costs of vocational education for handicapped persons, 20 percent for excess costs of disadvantaged persons (except that a portion of the disadvantaged setaside is reserved for persons of limited English speaking ability, as determined by the state's ratio of 15-24 year old students in the LEP category to total 15-24 year old population), and 15 percent for postsecondary education.

In the first half of this chapter, using data from a sample of 15 states, we consider funds distribution (federal, state, and local) by section heading (120, 130, 140, 150) and by legislative sub-purpose within the section 120 and 130 categories. For these 15 states we also describe funds distribution by legislative setaside, i.e., proportive of funds devoted to disadvantaged, handicapped, limited English proficiency and postsecondary students.

In the second half of this chapter, using data from a survey of LEA's and OER's in 10 states, we deal with certain similar or related topics: uses of funds to maintain, extend, or improve vocational programs; expenditures on target populations (again); efforts to overcome sex stereotyping in training; coordination of VEA and Comprehensive Employment and Training Act (CETA) programs; and use of VEA funds to purchase training services from private contractors.

I. Funds Distribution by Appropriations Categories and Legislative Setaside

In this part of our report we use data from the following 15 state sample; Alabama, California, Colorado, Florida, Illinois, Minnesota, New Hampshire, New York, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Utah, and Washington. It is instructive to see how well our 15 sample states appear to be representative of national data. Table VI-1 compares mean values of the 15 state sample with mean values of all the states for a number of important variables. Since five of the sample states were purposively chosen to be the five largest in terms of vocational enrollment, (California, Florida, Illinois, New York, and Texas) it is not surprising that the average of federal vocational allocations, as well as the average of vocational enrollment, is larger in the sample than in the national universe. Federal vocational allocation per capita

Table VI-1

COMPARISON OF MEAN VALUES OF THE SAMPLE (15) STATES
AND OF THE U.S., FY 79.

	Average of 15 States	Average of All States
1. Federal Vocational Education Allocation FY 79	$18,445,600	$11,520,000
2. Federal Vocational Education Allocation per Capita	$2.90	$2.87
3. Federal Vocational Education Allocation per Student	$52.14	$57.67
4. Estimated Federal Vocational Education Allocation per Handicapped Student	$313	$351
5. Estimated Federal Vocational Education Allocation per Disadvantaged Student	$231	$193
6. Enrollment in Vocational Education	461,750	261,147
7. Percentage of Enrolled Who Are Handicapped	1.87%	2.08%
8. Percentage of Enrolled Who Are Disadvantaged	7.07%	8.23%
9. Ratio of Federal Vocational Education Allocations to Federal Expenditures	1.10	1.06
10. Ratio of State and Local Government Vocational Education Expenditures to Federal Vocational Education Expenditures	11.27	8.74
11. Personal Income per Capita	7,552	7,608
12. Tax Capacity	97.6	99.3
13. Tax Effort	95.8	95.8
14. Unemployment Rates	6.59%	6.66%
15. Percentage of Children 5-17 in Poverty	14.15	14.26

of the sample is approximately equal to national average, but federal vocational dollars per student are 9 percent lower in the sample, indicating probably that the sample states have a somewhat greater than average propensity to enroll students in vocational classes. At first glance one might draw the same conclusion about disadvantaged students, but then we see that the percentage of persons enrolled who are disadvantaged is smaller in the sample states. Since the Federal setasides are minimums, not maximums, presumably the sample states had a slightly less than average inclination to spend federal vocational funds on the disadvantaged. Likewise, there is apparently a slight disinclination to identify students as handicapped or, once identified, to enroll them in vocational programs, and so Federal dollars per handicapped student are 20 percent higher in the sample than in the nation as a whole. On the other hand, the ratio of state and local expenditures to federal vocational expenditures is 29 percent higher in the sample states than the national average. This presumably reflects higher costs (mainly teachers' salaries) in the five core states and the apparent greater propensity of the sample states to enroll students in vocational education, noted above -- though not, it would seem, a greater propensity to enroll the disadvantaged and handicapped.

As for certain other magnitudes, there is no discrepancy as between the sample and the nation. These include the ratio of federal allocations to federal expenditures, personal income per capita, tax capacity, tax effort, unemployment rates, and percentage of children in poverty. Given the agreements so found between the sample and the nation, and given the fact that most discrepancies, where they exist, are in an order of magnitude no greater than 10 percent, we conclude that the sample states, taken as a whole, are basically representative of the national data.

A. Funds Distribution by Legislative (VEA) Sub-Purpose

The 1968 Amendments to the Vocational Education Act of 1963 required the states to spend various portions of their Federal grants on work-study programs, cooperative programs, construction, guidance and counseling, etc. The 1976 Amendments loosened the strings on the requirements to make particular kinds of programmatic expenditures, but it allowed states to use Federal funds for the following purposes under Section 120 grants: vocational education programs *per se*, work-study, cooperative programs, energy education, construction, grants to promote sex equity, student stipends, placement services, industrial arts, support services for women, day care, services for displaced homemakers, instruction under contract, and state and local administration. Section 130 money can be used by the states for research, exemplary and innovative programs, curriculum development, guidance and counseling, pre-service and in-service training, grants to overcome sex bias, and administration of the above activities.

Table VI-2 indicates that the *only* substantial uses of Section 120 Federal money are operation of vocational programs and state administration. The portion of federal money used for state administration varied amongst the states of our sample from 27 percent in New Hampshire to six percent in California, a large range.

South Dakota spent three percent of its Federal 120 money on sex equity research. Illinois spent five percent on work study, while Texas each spent four percent on that activity. New Hampshire allocated nine percent to cooperative programs, Colorado spent 5 percent and Alabama and Washington directed four percent. Alabama allocated six percent to construction. South Dakota put 11 percent on local administrative and Washington spent five on test purposes. Otherwise, none of the 15 states of the sample devoted more than three percent of its Federal 120 grants to any of the 13 permissive uses of Section 120 money, outside of program operation and administration.

Table VI-3 shows the allocation of state/local vocational education funds by legislative subpurpose. Under the Section 120 category, most of the state money was used for program operation and local administration. Expenditures for state administration from state funds were relatively minor.

Oklahoma spent four percent of state/local money for cooperative programs. Alabama spent eight percent for this purpose, as did Florida. South Dakota devoted nine percent to that activity. Three states, Florida, Pennsylvania, and South Carolina, used more than three percent of their state/local funds for construction, while two -- Florida and New Hampshire -- put more than three percent of their state/local outlays into industrial arts.

The pattern of use of Section 130 funds, with regard to Federal money and state/local money as well, is not uniform among the states of our sample and is therefore hard to summarize. (Tables VI-5 to VI-7). The following things, however, can be said: 1) in all states of our sample, guidance and counseling consumes a significant portion of Federal money; 2) in almost all states of the sample, teacher training represents an important use of Federal money (Alabama and New York being exceptions); 3) in almost all states of the sample, the research coordinating units receive substantial amounts of Federal money (New Hampshire and Pennsylvania being exceptions); 4) only in South Dakota is any notable amount of Federal money (over 10 percent) used for exemplary programs; 5) only in New York, Oklahoma, and Texas is any substantial amount of Federal money used for curriculum development; and 6) only in New York is any substantial amount of Federal money used for grants to overcome sex bias.

The reader may recall our observations in Chapter I to the point the that VEA legislation and regulations are self-contradictory, ambiguous, and open to easy manipulation by state and local governments. The results presented here about the uses of Federal funds and the degree to which state and local dollars are used to reinforce Federal objectives appear to put evidence behind our reservations about the effectiveness of Federal contrals over the uses of money. It would seem, indeed, that the 1976 VEA legislation is itself a variant of the block grant that is so popular in the current administration's approach to social policy.

Table VI-2

Distribution of Federal VEA 120 Funds By Legislative Subpurpose In Percentages

	AL	CA	CO	FL	IL	MN	NH	NY	OK	PA	SC	SD	TX	UT	WA	U.S.
Sex Equity Personnel	.84	.12	.95	.32	.41	.64	2.46	.20	.98	.16	.69	3.14	.31	2.35	0.70	.67
Displaced Homemaker	.03	.66	.81	.01	0.00	.13	.90	1.37	.09	.46	.40	.39	.30	.15	1.96	.45
State Administration	12.27	5.78	18.72	18.09	7.53	9.48	27.40	7.00	13.67	13.23	8.41	7.10	7.35	6.96	10.94	8.46
Voc Ed Programs	75.40	87.70	67.28	74.94	87.19	89.75	58.97	86.72	79.95	78.97	86.04	74.94	85.79	90.55	72.89	80.79
Work Study	.20	.61	1.37	2.63	4.71	0.00	.02	1.47	.27	1.41	.36	.59	4.26	0.00	1.38	1.36
Cooperative	3.82	.40	5.09	2.57	.16	0.00	9.45	1.16	2.91	2.40	2.66	2.61	0.00	0.00	4.36	2.04
Energy	0.00	0.00	2.26	0.00	0.00	0.00	0.00	.14	0.00	0.00	.05	0.00	0.00	0.00	0.00	.09
Construction	6.22	0.00	2.41	0.00	0.00	0.00	0.00	.90	.46	3.37	0.00	0.00	0.00	0.00	1.73	3.02
Stipends	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.15
Placement Services	0.00	.03	0.00	0.00	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.15
Industrial Arts	.31	1.95	0.00	0.00	0.00	0.00	.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.84
Suppt Serv for Women	0.00	.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.23	0.00	1.02	.14
Day Care Services	0.00	.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.17	0.00	.26	0.00	.42	.06
Residential Schools	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.22
Contractual Instruction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.05
Local Administration	.91	2.56	1.11	1.44	0.00	0.00	0.00	0.00	1.67	0.00	1.22	11.24	1.50	0.00	4.60	1.51

Table VI-3

Distribution of State and Local Vocational Education 120 Funds By Legislative Subpurpose In Percentages

	AL	CA	CO	FL	IL	MN	NH	NY	OK	PA	SC	SD	TX	UT	WA	U.S.
Sex Equity Personnel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00
Displaced Homemaker	0.00	0.00	0.00	.03	.02	0.00	0.00	n.a.	.10	.05	0.00	0.00	0.00	0.00	n.a.	.03
State Administration	3.87	.23	1.06	.44	.21	1.74	2.38	n.a.	2.14	.52	1.39	2.10	.84	1.21	n.a.	.99
Voc Ed Programs	81.60	94.38	91.78	67.82	99.67	98.26	82.93	n.a.	90.75	92.73	72.51	79.75	82.62	98.79	n.a.	86.14
Work Study	0.00	.07	.11	.08	.09	0.00	0.00	n.a.	.14	.06	.02	.14	.03	0.00	n.a.	.12
Cooperative	7.67	.43	.56	7.65	0.00	0.00	1.46	n.a.	3.84	.25	.06	8.67	0.00	0.00	n.a.	2.18
Energy	0.00	0.00	.06	.03	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.01
Construction	2.30	0.00	.52	10.23	0.00	0.00	0.00	n.a.	.28	4.30	3.44	0.00	0.00	0.00	n.a.	3.36
Stipends	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00
Placement Services	0.00	.11	0.00	.03	0.00	0.00	0.00	n.a.	0.00	0.00	.24	0.00	0.00	0.00	n.a.	.04
Industrial Arts	.66	0.00	0.00	3.91	0.00	0.00	13.23	n.a.	.01	0.00	0.00	0.00	1.81	0.00	n.a.	1.98
Suppt Serv for Women	0.00	.04	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.01
Day Care Services	0.00	.07	0.00	.02	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.02
Residential Schools	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.07
Contractual instruction	0.00	0.00	0.00	.02	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.07
Local Administration	3.91	4.66	5.90	9.73	0.00	0.00	0.00	n.a.	2.74	2.08	22.32	9.33	14.70	0.00	n.a.	4.99

Table VI-4

Distribution of Total (Federal, State and Local) Vocational Education 120 Funds By Legislative Subpurpose In Percentages

	AL	CA	CO	FL	IL	MN	NH	NY	OK	PA	SC	SD	TX	UT	WA	U.S.
Sex Equity Personnel	.10	.01	.08	.01	.01	.05	.40	n.a.	.07	.01	.04	.62	.03	.14	n.a.	.05
Displaced Homemaker	0.00	.04	.06	.03	.02	.01	.14	n.a.	.10	.07	.02	.08	.03	.01	n.a.	.05
State Administration	6.45	.60	2.48	1.06	.47	2.35	6.43	n.a.	3.00	1.30	1.78	3.08	1.48	1.69	n.a.	1.64
Voc Ed Programs	79.51	94.00	89.81	68.06	99.24	97.59	79.05	n.a.	89.95	91.18	73.26	78.81	92.93	98.15	n.a.	85.66
Work Study	.02	.10	.21	.17	.25	0.00	0.00	n.a.	.15	.15	.04	.23	.45	0.00	n.a.	.21
Cooperative	7.06	.43	.93	7.48	.01	0.00	2.75	n.a.	3.77	.38	.20	7.49	0.00	0.00	n.a.	2.17
Energy	0.00	0.00	.24	.02	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.01
Construction	2.76	0.00	.67	9.87	0.00	0.00	0.00	n.a.	.29	4.21	3.25	0.00	0.00	0.00	n.a.	3.35
Stipends	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.01
Placement Services	0.00	.10	0.00	.03	0.00	0.00	0.00	n.a.	0.00	0.00	.23	0.00	0.00	0.00	n.a.	.04
Industrial Arts	.61	0.00	0.00	3.78	0.00	0.00	11.22	n.a.	.01	0.00	0.00	0.00	1.64	0.00	n.a.	1.88
Suppt Serv for Women	0.00	.05	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	.02	0.00	n.a.	.02
Day Care Services	0.00	.07	0.00	.02	0.00	0.00	0.00	n.a.	0.00	0.00	.01	0.00	.03	0.00	n.a.	.02
Residential Schools	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.09
Contractual Instruction	0.00	0.00	0.00	.02	0.00	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.07
Local Administration	3.47	4.59	5.51	9.44	0.00	0.00	0.00	n.a.	2.66	1.94	21.15	9.70	13.40	0.00	n.a.	4.73

Table VI-5

Distribution of Federal VEA
130 Funds By Legislative Subpurpose
In Percentages

	AL	CA	CO	FL	IL	MN	NH	NY	OK	PA	SC	SD	TX	UT	WA	U.S.
State Administration	16.59	14.75	15.87	16.11	12.54	11.50	26.74	6.27	14.04	12.62	8.39	10.09	5.88	8.31	8.82	9.75
Guidance & Counseling	63.96	35.62	20.98	18.80	25.59	42.72	23.76	30.87	29.14	43.19	49.17	36.93	27.46	10.37	41.58	40.07
Preserv & Inserv	5.72	23.90	42.38	43.50	21.24	27.12	42.12	8.65	26.03	54.72	11.88	17.41	22.25	69.27	25.91	21.97
Grants - Sex Bias	0.00	2.52	0.00	0.00	2.06	3.87	0.00	10.26	0.00	0.00	1.39	0.00	.54	0.00	.50	1.85
Local Administration	.79	2.32	1.08	0.00	0.00	0.00	0.00	0.00	1.71	0.00	1.20	6.75	4.00	0.00	4.56	2.19
Research - RCU	.52	2.71	10.93	11.49	0.00	0.00	0.00	21.44	4.00	7.39	2.69	12.24	7.27	8.66	0.00	6.21
Exemplary Programs	0.00	1.55	2.42	1.32	0.00	0.00	0.00	.48	3.40	6.08	0.00	24.87	8.17	2.45	0.00	4.55
Curriculum Development	.56	2.93	6.34	8.77	0.00	0.00	0.00	22.03	21.67	2.40	0.00	3.04	24.43	.95	0.00	7.09
Total RCU	18.94	20.88	19.69	21.58	38.56	14.79	7.38	43.94	29.07	3.85	27.97	28.82	39.87	12.05	12.92	24.14

Source for Tables VI and VII

The basic data for these tables was supplied to us by VEDS. The U.S. figure is actually the total for 47 states, the District of Columbia, and outlying areas. The combined federal and non-federal expenditures for each item of Sections 120 and 130 did not always equal the total expenditures, line by line. However, the differences were small. In a few instances the original data appeared to be in error due to key punching or typographical mistakes, and these were corrected by us. In all instances, the changes were not large in terms of the overall Section 120 or 130 expenditures for that state.

Table VI-6

Distribution of State and Local Vocational Education
130 Funds By Legislative Subpurpose
In Percentages

	AL	CA	CO	FL	IL	MN	NH	NY	OK	PA	SC	SD	TX	UT	WA	U.S.
State Administration	7.44	0.00	5.53	2.68	28.19	0.00	4.53	n.a.	8.17	2.72	6.41	7.94	3.50	8.36	n.a.	3.35
Guidance & Counseling	74.66	87.21	21.77	50.22	11.52	59.48	30.38	n.a.	21.07	62.32	78.60	27.92	84.98	15.45	n.a.	70.16
Preserv & Inserv	0.00	5.28	35.74	4.10	28.16	38.66	59.55	n.a.	13.41	18.86	14.99	20.87	0.00	74.66	n.a.	8.58
Grants - Sex Bias	0.00	0.00	0.00	.11	.66	0.00	0.00	n.a.	0.00	0.00	0.00	0.00	0.00	0.00	n.a.	.10
Local Administration	16.94	0.00	34.17	16.00	0.00	0.00	0.00	n.a.	10.46	10.61	0.00	11.52	11.44	0.00	n.a.	7.06
Research - RCU	0.00	1.89	0.00	.37	0.00	0.00	0.00	n.a.	.46	.08	0.00	2.41	0.00	0.00	n.a.	1.23
Exemplary Programs	0.00	0.00	1.39	.03	0.00	0.00	0.00	n.a.	.01	1.07	0.00	6.53	.01	12.85	n.a.	1.92
Curriculum Development	0.00	1.87	0.00	13.05	0.00	0.00	0.00	n.a.	23.00	1.59	0.00	0.00	.03	-12.08	n.a.	2.21
Total RCU	.66	3.75	1.40	13.45	31.47	1.86	5.54	n.a.	23.47	2.75	0.00	22.80	.04	.76	n.a.	5.38

Table VI-7

Distribution of Total (Federal, State and Local) Vocational Education 130 Funds By Legislative Subpurpose In Percentages

	AL	CA	CO	FL	IL	MN	NH	NY	OK	PA	SC	SD	TX	UT	WA	U.S.
State Administration	8.50	3.96	8.50	5.12	17.85	2.70	13.97	n.a.	8.93	4.96	6.89	6.86	3.71	7.93	n.a.	5.13
Guidance & Counseling	70.13	76.58	20.14	42.20	20.82	55.54	26.44	n.a.	21.44	53.36	70.36	24.60	60.33	12.52	n.a.	59.40
Preserv & Inserv	2.41	8.66	35.61	11.41	23.59	35.95	53.18	n.a.	15.30	22.84	14.09	14.92	6.01	68.77	n.a.	11.90
Grants - Sex Bias	0.00	.68	0.00	.08	1.58	.91	0.00	n.a.	0.00	0.00	.36	0.00	.15	0.00	n.a.	.41
Local Administration	10.12	.13	21.37	12.31	0.00	0.00	0.00	n.a.	7.91	7.28	.31	7.26	8.20	0.00	n.a.	5.48
Research - RCU	.22	2.27	3.52	2.46	0.00	0.00	0.00	n.a.	1.20	1.87	.70	5.20	1.96	3.58	n.a.	2.23
Exemplary Programs	0.00	.42	1.63	.27	0.00	0.00	0.00	n.a.	.74	2.23	0.00	11.27	2.21	7.92	n.a.	2.66
Curriculum Development	.24	2.31	2.04	11.70	0.00	0.00	0.00	n.a.	21.26	1.68	0,00	1.03	6.62	-6.10	n.a.	3.19
Total RCU	8.37	5.00	7.19	14.44	36.15	4.90	6.41	n.a.	23.21	5.78	7.29	28.84	10.80	5.39	n.a.	9.61

B. Funds Distribution Under the Legislative Setasides

Let us now consider the allocation of funds to the 'national priority programs' identified in the 1976 VEA legislation. Table VI-8 pertains to the placement of Federal VEA funds by the states on services for persons in the setaside categories: handicapped, disadvantaged, limited English proficiency, and postsecondary. In the case of the 10 percent setaside for handicapped persons, only New York and Pennsylvania appeared to be in conformity with the Federal statutes in 1978-79, though all sample states, except Alabama, South Dakota, and Texas, were reasonably close. With regard to the 20 percent setaside for disadvantaged people, the range in state allocations of federal funds was very wide. Illinois allocated nearly 50 percent of its federal receipts to the disadvantaged, while Alabama, California, and South Carolina directed less than 15 percent of federal money to this purpose. Strictly speaking, of the sample states, only Illinois appeared to be in compliance in 1978-79 though Texas was very close. Likewise, the range amongst the sample states in federal allocations for postsecondary programs is broad. Colorado directed 55 percent of federal money to this purpose, and Illinois, 45 percent, while the states of Alabama, New Hampshire, and Pennsylvania fell below the mandated 15 percent level.

Table VI-9 reveals that states and localities are even less eager to spend their own tax resources on behalf of target populations than they are to use Federal dollars in that way. In other words, the setaside provisions of the 1976 VEA legislation has not resulted in any great

Table VI-8

Federal VEA Funds (FY 78 - FY 79) Distribution by Legislative Purpose Setasides

States	Handicapped	Disad-vantaged	Limited English Proficiency	Post-secondary and Adult
ALABAMA	4.85	11.88	0.00	12.02
CALIFORNIA	8.67	14.74	.60	16.45
COLORADO	8.95	17.03	.87	54.92
FLORIDA	9.00	15.10	1.20	16.77
ILLINOIS	9.84	48.94	1.76	45.15
MINNESOTA	9.42	16.66	1.90	41.89
NEW HAMPSHIRE	8.95	17.63	0.00	12.36
NEW YORK	10.62	16.91	2.53	16.90
OKALAHOMA	8.71	17.31	0.00	22.25
PENNSYLVANIA	10.37	15.96	.16	13.70
SOUTH CAROLINA	8.51	12.84	0.00	15.13
SOUTH DAKOTA	5.81	18.55	0.00	31.93
TEXAS	6.04	19.98	0.00	26.48
UTAH	7.96	16.86	2.62	25.23
WASHINGTON	n.a.	n.a.	n.a.	n.a.
U.S.	8.96	17.56	.76	21.61

Table VI-9

State and Local Vocational Education Funds (FY 78 - FY 79) Distribution by Legislative Purpose Setasides

States	Handicapped	Disad-vantaged	Limited English Proficiency	Post-secondary and Adult
ALABAMA	1.18	2.96	0.00	37.20
CALIFORNIA	1.60	1.60	.21	2.79
COLORADO	3.47	3.45	0.00	33.73
FLORIDA	2.16	8.00	.10	31.83
ILLINOIS	4.59	6.57	.17	33.96
MINNESOTA	2.02	2.64	.20	58.16
NEW HAMPSHIRE	2.02	2.45	.44	3.02
NEW YORK	n.a.	n.a.	n.a.	n.a.
OKALAHOMA	1.35	2.55	0.00	49.57
PENNSYLVANIA	1.33	2.42	.02	5.38
SOUTH CAROLINA	.76	.98	0.00	47.13
SOUTH DAKOTA	1.95	5.40	0.00	29.38
TEXAS	1.44	6.39	0.00	23.37
UTAH	1.15	.21	.23	33.16
WASHINGTON	n.a.	n.a.	n.a.	n.a.
U.S.	2.23	5.89	.32	30.01

infusion of state-local resources into the "national priority programs."

On the other hand, it is not the case, apparently, that states lack target populations to care for. To illustrate this point, we may compare the percentages in Table VI-10, showing total vocational education funds allocated to disadvantaged persons with the figures of Table VI-11, showing percentage of children in the fifteen sample states who live in poverty.

Finally, comparison of Tables VI-8 and VI-10 indicate that, as was the case with distribution of vocational education funds by major sections of Federal appropriations, the pattern of total expenditures on setaside purposes is more approximately equal to that of state/local expenditures than to the allocations of Federal funds. Given that Federal appropriations are a small part of total expenditures and given that states and local authorities do not yet appear to have embraced Federal priorities with any notable degree of enthusiasm, this is, practically speaking, an inevitable result.

Table VI-10

Total (Federal, State and Local) Vocational Education Funds (FY 78 - FY 79)
Distribution by Legislative Purpose
Setasides

States	Handicapped	Disad-vantaged	Limited English Proficiency	Post-secondary and Adult
ALABAMA	1.79	4.44	0.00	33.14
CALIFORNIA	2.05	2.44	.24	36.59
COLORADO	4.04	4.85	.09	35.91
FLORIDA	2.48	8.30	.15	31.13
ILLINOIS	4.69	.24	.24	33.49
MINNESOTA	2.72	3.98	.36	56.61
NEW HAMPSHIRE	3.19	5.97	.37	4.61
NEW YORK	n.a.	n.a.	n.a.	n.a.
OKALAHOMA	2.04	3.93	0.00	47.04
PENNSYLVANIA	2.09	3.56	.03	6.08
SOUTH CAROLINA	1.31	1.83	0.00	44.85
SOUTH DAKOTA	2.73	8.05	0.00	29.73
TEXAS	1.95	7.92	0.00	23.72
UTAH	1.91	2.06	.50	32.31
WASHINGTON	n.a.	n.a.	n.a.	n.a.
U.S.	2.89	7.05	.38	29.34

Table VI-11

Children Aged 5-17 Living in Poverty 1975

States	Percent of Children in Poverty
Alabama	15.9
California	13.8
Colorado	10.7
Florida	21.6
Illinois	15.1
Minnesota	9.1
New Hampshire	10.3
New York	13.1
Oklahoma	14.6
Pennsylvania	12.6
South Carolina	23.9
South Dakota	13.1
Texas	20.5
Utah	8.0
Washington	10.0
U.S.	14.5

Source: U.S. Bureau of the Census, Current Population Reports, series P-60, Nos. 110-113.

II. Special Topics in Funds Distribution: Program Improvement, Excess Costs, Sex Equity, CETA Coordination, and Private Contracting

In this section we report on a series of special topics in funds distribution, using data of kinds that are obtainable only from local agencies. As described in Chapter II, we conducted a survey of 1,200 local agencies on various matters concerning uses of vocational education funds. These 1200 agencies are located in 10 states: California, Colorado, Florida, Illinois, Kansas, Massachusetts, New York, North Carolina, South Dakota, and Texas. The list includes NIE's five core states (underlined) that are common to all NIE's contracted studies. The remaining five states were chosen purposively, and the choice was intended both to improve regional balance and to give a fair representation of rural districts.

Because the states were not selected randomly, in a strict statistical sense, the findings cannot be used to generalize about the nation as a whole. Nevertheless, the tenstate sample represents a sufficiently large portion of the vocational education enterprise such that the findings have significance regardless of whether they apply to the remainder of the country. The ten states surveyed account for 39 percent of students enrolled in vocational education. They receive 34 percent of federal VEA funds and account for 48 percent of total state and local expenditures for vocational education. The states include large urban centers such as New York, Chicago, and Los Angeles, as well as predominantly rural states as South Dakota and Kansas. They represent a broad geographic distribution with states from the northeast, south, midwest, and far west. In short, they capture a number of important differences among states that may affect the delivery of vocational education.

To select LEAs within states, we employed a stratified random sampling procedure that permits generalizing the results for the sample within each state to the state as a whole. The sample contains seven strata:

Stratum 1: rural LEAs serving no city greater than 10,000 people and also lying outside any standard metropolitan statistical area (SMSA)

Stratum 2: LEAs serving no city greater than 10,000 people but lying within an SMSA

Stratum 3: LEAs serving at least one city with a population between 10,000 and 49,999

Stratum 4: LEAs serving at least one city with a population between 50,000 and 99,999

Stratum 5: LEAs serving at least one city with a population of 100,000 or more

Stratum 6: LEAs in the suburban ring of the state's largest city

Stratum 7: the LEA serving the state's largest city.

A. Expenditures to Maintain, Improve, and Expand Vocational Education Programs.

In addition to improving the access of the handicapped, the disadvantaged, and women to high quality vocational education programs, the Vocational Education Act seeks more generally to support improvements, innovations, and changes in the existing vocational education programs. Thus, the 1976 Amendments state that Federal assistance is to be used to "extend, improve, and where necessary, maintain existing programs of vocational education" (P.L. 94-482, Section 101(1)), as well as "to develop new programs of vocational education" (P.L. 94-482, Section 101(2)).

Although the legislation does not prohibit using Federal funds to maintain existing programs, the use of the phrase "where necessary" implies that Congress sought mainly to spur program innovation and improvement. Other provisions of P.L. 94-482 support this inference. Thus, Section 106(a)(6) stipulates:

> that Federal funds made available under this Act will be so used as to supplement, and to the extent practicable, increase the amount of State and local funds that would in the absence of such Federal funds be made available for the uses specified in the Act, and in no case supplant such State and local funds.

Section 111(b) further requires states to maintain previous levels of fiscal effort. In short, it is apparent that Congress intended federal funds to supplement state and local funds and to be used for program improvement and expansion that states would not otherwise be able to carry out with their own resources.

Consequently, the survey sought to determine LEAs' expenditures on program support, improvement, and expansion. We should stress that determining the extent to which Federal, as opposed to state and local, dollars supported these activities is exceedingly difficult. Several problems complicate the analysis. First, in many states, by the time Federal VEA money reaches the local level, it is indistinguishable from state or local dollars. Therefore, what Federal dollars purchased cannot be identified. Second, even if LEAs could distinguish Federal dollars from state and local dollars, there is usually no way of knowing how they would have expended funds in the absence of Federal dollars. Thus, for example, many LEAs use Federal dollars only for equipment purchases. This restrictive use of Federal money is mostly a matter of convenience; it makes accounting for Federal money a simple task and purchases are tangible and easily displayed. However, the fact that LEAs spend Federal dollars in this fashion does not mean that lacking Federal money they would not have purchased the equipment, but simply that state and local dollars that would otherwise have been used for these purchases have been directed to other purposes. In short, a Federal dollar is easily substituted for a state and local dollar.

A third factor complicating analysis of what Federal dollars buy is that despite the prohibition against supplanting, the maintenance of effort requirement is so weak as to permit substantial supplanting. An LEA is considered to be maintaining sufficient fiscal effort as long as the present year's expenditures, either in the aggregate or on a per student basis, exceed 95 percent of the previous year's expenditures. Moreover, the legislation requires no adjustment for inflation so that in real terms supplantation of as much as 15 percent of state and local expenditures can occur annually without violating the law.

For these reasons, the survey did not attempt to determine what proportions of Federal money were used for program maintenance, program improvement, or progam expansion. Rather, we asked LEAs what proportions of their total vocational education budget (Federal, state and local) they spent for four general purposes:

1. Supporting existing programs (including expenditures for staff and maintenance of existing buildings and equipment).
2. Improving existing programs (by adding teachers or aides, purchasing or replacing equipment, expanding facilities, etc).
3. Adding new programs.
4. Adding new services (such as counselors, facilities for handicapped students, etc.

Thus, we tried to guage the overall level of program improvement or expansion rather than that which might be supported with Federal funds.

Table V-12 summarizes the secondary responses to this question. As is to be expected, in most LEAs the bulk of the vocational education budget, 83 percent on the average, maintains existing programs. Only in an LEA just beginning to develop a vocational program would one expect to find much deviation from this pattern. Twenty percent of the LEAs responding to this question reported that all of their budget was used to support existing programs, with no funds expended on program improvement or expansion.

Seventy-five percent of the LEAs reported spending some money to improve vocational education programs, with half of these saying that

Table V-12

Distribution of Total Vocational Education Budget Secondary, FY 1979

% of Total Vocational Education Budget Spent To:	% of Districts in Each Category
A. Support Existing Programs	
70 or less	20%
71 - 85	22
86 - 90	18
91 - 99	20
100	20
	100%
Number of Districts = 405*	
B. Improve Existing Programs	
0	25%
1 - 5	21
6 - 10	23
11 - 20	16
21 or more	15
	100%
Number of Districts = 413	
C. Add New Programs	
0	74%
1 - 4	7
5	8
6 - 10	5
11 or more	5
	100%
Number of Districts = 414	
D. Add New Services	
0	78%
1	4
2 - 4	5
5	7
6 or more	5
	100%
Number of Districts = 414	

*Data unavailable from approximately 170 districts.

they spent more than eight percent of their budgets on program improvement. A much smaller number, 26 percent of the sample, expended funds to add new programs, and among those LEAs, expenditures on new programs typically amounted to less than five percent of the total budget. Finally, only 22 percent of the sample reported spending money to add new services, and when they did so, these expenditures typically accounted for less than three percent of total spending.

At the postsecondary level (Table V-13), only six LEAs, or three percent, reported spending all of their budget to support existing programs. Half reported spending more than seven percent of their budget to improve programs. Over half said they had spent some money to add new programs, compared to only 26 percent of secondary LEAs. Forty-five percent said they had added new services.

What conclusions do these figures suggest? First, we should emphasize the "soft" quality of data produced by this question. LEAs do not maintain accounts in terms of program maintenance, improvement, and so forth. Respondents were asked to estimate allocations, and their responses represent "best guesses" that are subject to substantial inaccuracy. Indeed, the high level of non-response to the question -- 30 percent of the secondary LEAs did not answer the question -- suggests that the query was difficult to answer. Nevertheless, because of the Congressional emphasis on new programs and program improvement, we felt it important to attempt some data collection.

With these caveats in mind, then, it seems safe to say that most

Table V-13

Distribution of Total Vocational Education Budget Postsecondary, FY 1979

% of Total Vocational Education Budget Spent To:	% of Districts in Each Category
A. Support Existing Programs	
75 or less	22%
76-85	24
86-90	19
91-95	22
96-100	11
Number of LEAs = 173	
B. Improve Existing Programs	
0-2	17%
3-6	20
7-10	27
11-15	20
15+	14
Number of LEAs = 172	
C. Add New Programs	
0	46%
1-2	17
3-5	13
6-8	11
9-20	13
Number of LEAs = 172	
D. Add New Services	
0	55%
1-2	16
3-4	7
5-7	12
8+	10
Number of LEAs = 172	

LEAs are making some effort to improve programs. Insofar as Federal funds are less restricted than state and local dollars and therefore give LEAs more budgeting flexibility than they would otherwise have, then it is likely that VEA funds play an important though hard to measure role in program improvement. On the other hand, a relatively small number of secondary LEAs are adding new programs or services. Indeed, if one took literally the directions of Section 106(a)(5)(A)(ii) to give priority to applicants which "propose programs which are new to the area to be served and which are designed to meet new and emerging manpower needs..." less than one-fourth of the secondary and about one-half of the postsecondary LEAs responding could satisfy this criterion. Thus, while Federal funds may play an important role in enabling those LEAs to add new programs, VEA funds have apparently not encouraged large numbers of LEAs to undertake program expansion. This conclusion is further reinforced by LEAs' responses to questions on program changes, as we shall now see.

An additional way to assess the extent of program innovation at the local level, as well as LEAS' responsiveness to local labor market needs, is to ask local agencies whether in 1978-79 they had discontinued, reduced, expanded, or added any vocational education programs. We consider a program reduced or expanded only if changes occurred in the number of teaching personnel or if changes occurred in the number of classes offered. Additionally, if changes had occurred, we asked respondents to indicate why e.g., changes in student interest, availability of funds, local labor market needs, etc.

As Table V-14 indicates, about one-fourth of the secondary LEAs and one-half of the postsecondary group reported making program changes in 1978-79. Among secondary LEAs, only 17 percent of the LEAs answering the question reported adding new programs or expanding existing ones (Table V-15). This figure is considerably lower than the 25 percent of LEAs reporting they had allocated a portion of their vocational education budget to additions of new programs.

For postsecondary respondents, these figures were higher. Almost one-third reported discontinuing or reducing a program, a respondents may simply have not known what specific programs were added or expanded, or they may have failed to provide the information because they felt it was not worth the trouble to complete the response. In any event, the finding that 17 percent of the secondary LEAs expanded or added programs should be regarded as the minimum number doing so.

Table V-16 displays secondary LEA responses to this question by stratum. The proportion of LEAs making changes is much higher in the larger LEAs. Thus, all of the central cities and 57% of the LEAs serving cities with more than 100,000 residents reported making changes. In contrast, only 16 percent of the rural LEAs and 20 percent of the small suburban towns reported changes. These results are not surprising but they underscore a problem that is often overlooked by those demanding that LEAs respond more quickly to changing labor market conditions. Program changes are expensive and depend critically on availability of

Table V-14

Proportion of Districts Reporting Changes in Vocational Education Programs, 1978-79

	SECONDARY	POSTSECONDARY
Instituted Changes	26%	58%
Did Not Institute Changes	74%	42%
	100%	100%

Number of LEAs = 437 (secondary) and 106 (postsecondary).

Table V-15

LEAs Reporting Program Changes for 1978-79

	SECONDARY		POSTSECONDARY	
PROGRAM CHANGE	N	% of LEAs	N	% of LEAs
Discontinued Programs	26	6%	17	16%
Reduced Programs	20	5%	16	15%
Expanded Programs	39	9%	23	22%
Added New Programs	33	8%	50	47%
	N = 436		N = 106	

fifth said they expanded programs, and over half said they had added new programs. This greater level of change at the postsecondary level may explain why postsecondary institutions were relatively more successful at hiring or reassigning staff to promote sex equity as we shall indicate below.

We should note that when answering this question, respondents were asked to list the programs changed. Consequently, some skilled teachers, as well as flexibility to relocate existing teaching personnel. Consequently, smaller LEAs have a more difficult time making program changes. Adding or expanding a single program is likely to represent a much greater portion of a rural LEA's vocational education budget than that of a large city. Similarly, with a much smaller pool of vocational education teachers, small LEAs have less flexibility in staffing. Therefore, encouraging program expansion among rural and other small LEAs will require one of two strategies. Either they must be encouraged to consolidate vocational education in area vocational schools or other shared-time arrangements that permit economies of scale, or they must have access to additional funding that recognizes the high cost of program expansion in small and often geographically isolated LEAs.

Table V-16
LEAs Making Changes in Vocational Education Programs
By Stratum

Stratum	Made Changes	Did Not Make Changes
CENTRAL CITIES	100%	
SUBURBAN RING	30%	70%
CITIES OVER 100,000	57%	43%
MIDDLE SIZE CITIES	41%	59%
SMALL SUBURBAN TOWNS	20%	80%
RURAL TOWNS	16%	84%

Table V-17

Percentage of LEAs Incurring Excess Costs for Handicapped and Disadvantaged Students FY 1979

Proportion of Total Sample Which Incurred Excess Costs for:	Secondary	Postsecondary
Mainstreamed Handicapped Students	22%	37%
Special Vocational Education for Handicapped Students	22%	29%
Mainstreamed Disadvantaged Students	23%	42%
Special Vocational Education for Disadvantaged Students	18%	36%
Students of Limited English Speaking Proficiency	4%	20%
	n = 550	n = 211

B. Response of Local Agencies to Excess Cost Requirements for Target Populations

The survey asked a number of questions concerning vocational education for handicapped and disadvantaged students, and for students with limited English proficiency. Sixty-four percent of the secondary and 80 percent of the postsecondary LEAs said they had handicapped students mainstreamed in regular vocational education programs, but only 22 percent of all the secondary respondents and 37 percent of all postsecondary respondents reported incurring excess costs for mainstreamed handicapped students (see Table V-20). Similarly, over 70 percent of secondary and over 90 percent of postsecondary LEAs said they had mainstreamed disadvantaged students, but only 23 percent and 42 percent, respectively, said they incurred excess costs for these students.

These findings should be interpreted cautiously. They do not necessarily mean that a relatively small number of LEAs incurred excess costs, but may simply indicate that only a small number are able to keep track of excess costs or find it worthwhile to do so. As displayed in Table V-18 and V-19, there is a strong relation between the size of LEAs and the proportion of LEAs reporting excess costs, and larger LEAs may find it more worthwhile to establish the necessary accounting procedures. Less than 15 percent of the LEAs in strata 1 and 2, serving cities of 10,000 or fewer, reported incurring excess costs for mainstreamed disadvantaged and handicapped students, while over half of the LEAs serving cities of 100,000 or more reported incurring excess costs.

Table V-18

Distribution of Districts Reporting Excess Costs for Mainstreamed Handicapped Students By Size of Community Secondary - FY 1979

Size of Community	Incurred Excess Costs	No Excess Costs	Total %	Number of Districts
CENTRAL CITIES	57%	43	100%	7
SUBURBAN RING	34%	66	100%	65
CITES OVER 100,000	52%	48	100%	23
MIDDLE SIZE CITIES	[illegible]0%	60	100%	109
SMALL SUBURBAN TOWNS	15%	85	100%	89
RURAL TOWNS	11%	88	100%	256
TOTAL	22%	78	100%	550*

*Figures unavailable for 30 districts.

Table V-19

Provision of Special Vocational Education for Handicapped Students By Size of Community Secondary - FY 1979

Size of Community	Provided Special Programs	No Special Programs	Total %*	Number of Districts
CENTRAL CITIES	100%	0	100%	8
SUBURBAN RING	28%	72	100%	65
CITIES OVER 100,000	57%	43	100%	23
MIDDLE SIZE CITIES	40%	60	100%	108
SMALL SUBURBAN TOWNS	13%	87	100%	91
RURAL TOWNS	10%	90	100%	259
TOTAL	22%	78	100%	554**

* Figures may not equal 100% due to rounding error.
** Data unavailable for 24 districts.

Approximately the same proportions of LEAs reporting excess costs for mainstreamed students reported incurring excess costs for special classes and facilities. Twenty-one percent of the secondary LEAs reported having special programs for handicapped, 17 percent for disadvantaged. Again, these LEAs were more heavily concentrated among strata 4, 5, and 7, containing LEAs serving cities in excess of 50,000 people. Only 10 percent of the rural LEAs in stratum 1 reported operating special programs for handicapped or disadvantaged students.

Not surprisingly, only 17 percent of the secondary LEAs reported having students with limited English proficiency enrolled in vocational education. Of these, less than one-fifth said they incurred excess costs. Again, these LEAs were more heavily concentrated among the urban strata. Fifty percent of postsecondary LEAs said they had vocational education students with limited English proficiency, but only 20 percent said they incurred excess costs for these students.

A striking finding of the questions concerning excess costs is the relatively small amount of expenditures these costs represent. As Table V-20 reveals, the size and coverage of excess costs were quite modest. Thus, while total excess costs for mainstreamed handicapped students ranged from as little as $95 in one secondary LEA to $524,000 in another, these costs did not exceed $7,100 in half of the secondary LEAs. Postsecondary institutions reported somewhat larger total excess costs, reflecting the larger size of the typical postsecondary institution, but the amounts are still quite modest. The median excess cost per student

Table V-20

Median Size and Scope of Excess Cost Expenditures
For Different Target Populations, 1978-1979

TARGET POPULATION	MEDIAN TOTAL EXCESS COSTS		MEDIAN COST PER STUDENT		MEDIAN NO. OF STUDENTS SERVED	
	Secondary	Postsecondary	Secondary	Postseconary	Secondary	Postsecondary
Mainstreamed Handicapped	$ 7,000	$25,000	$375	$ 455	20	40
Special Voc. Ed. Handicapped	$22,000	$50,000	$833	$1,070	28	71
Mainstreamed Disadvantaged	$12,000	$34,500	$151	$ 166	87	250
Special Voc. Ed. Disadvantaged	$30,000	$45,000	$505	$ 413	76	102
Students with Limited English Speaking Proficiency	$11,000	$ 7,050	$331	$ 200	37	30

was similar between secondary and postsecondary institutions and in some instances was lower in postsecondary than in secondary institutions.

Recalling that VEA funds may be used to pay for up to half of excess costs, this means that VEA allocatons for mainstreamed handicapped secondary students did not exceed $3,550 in over half of the LEAs -- a very small sum considering the paperwork required to comply fully with the regulations. Similarly, the median total excess costs for mainstreamed disadvantaged secondary students was $12,000, so total VEA allocations for mainstreamed students did not exceed $6,000 in half the LEAs.

As expected, excess costs for special classes and facilities were significantly higher, with the median secondary figure being $22,000 for handicapped and $30,000 for disadvantaged students. Similar median figures for postsecondary were $65,000 for handicapped students and $45,000 for disadvantaged. These figures for excess costs in special programs are two to three times greater than those for mainstreamed programs. Thus, the incentives to isolate these students are powerful indeed. Not only are the costs much easier to keep track of, but the levels of reimbursement are much higher.

To summarize, while the vast majority of LEAs report having handicapped and disadvantaged students enrolled in vocational education, most are either unable or do not find it worth their while to keep track of excess costs. Moreover, in all but the largest LEAs, excess costs amount to a rather small sum, especially for mainstreamed students. Whether this means that handicapped and disadvantaged students are being poorly served in vocational education cannot be determined from the data; at best, the findings suggest that the excess cost notion is not a particularly effective way to direct federal revenues to special populations.

C. Efforts of Local Agencies to Promote Sex Equity in Training

Introducing efforts to promote sex equity in vocational education constituted one of the major new features enacted with the 1976 Amendments. The 1976 legislation explicitly authorized funds for overcoming sexual discrimination and sexual stereotyping in vocational educaiton. While these authorized funds of limited amount are directed only to the state level, the Amendments included a number of comments and directives regarding sexual inequality in vocational education.

First, the legislation clearly stated that utilizing funds for eliminating inequality was a legitmate and proper use of Federal funds. States may spend funds under a number of sections to overcome sex bias.* Second, the legislation required that a state, as part of its state plan, describe its plan to overcome the problem of sex discrimination. A number of topics were to be included, ranging from data collection on sex equity to providing assistance to local education agencies interested in improving vocational education opportunities for women. States were to reserve $50,000 from their basic grant for these issues. States were also to assign (at the state level) a full-time sex equity coordinator to carry out the plan.

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* Legislation permitted expenditures to promote sex equity under both Section 120 and Section 130 funding sources. Section 120 would normally be directed to program innovation or special services, while Section 130 funds would be directed to research, counseling, and other issues.

The hearings for the 1976 reauthorization underscored the need to address the issue of sex bias and sex stereotyping in vocational education. A number of people testified on a number of problems facing females in both the economy and vocational education programs. They noted that while women's difficulties in obtaining quality occupational training and employment is a longstanding problem, it assumes heightened significance as greater numbers of women are entering the labor force in larger numbers and for longer periods than before. Today, it is estimated that 90 percent of women will hold a paying job for some period of their lifetimes. Moreover, women are coming to occupy a greater portion of the total work force. While in 1950 women constituted less than 30 percent of the work force, by 1979 they were 40 percent, and their relative numbers continue to grow.*

While women have come to play an increasingly significant part in the work force, they face serious hurdles to occupational success. Women are concentrated in low skill, low paying jobs with limited career ladders. Women with similar levels of educational and occupational training continue to earn lower salaries, and at times enter on a lower rung of the job ladder than their male counterparts.

This pattern of sexual inequality in the labor force has been mirrored in public vocational education programs. In 1976, critics noted that sex segregation in vocational programs was severe. For years, homemaking and consumer education had been the almost exclusive domain of females, while boys have participated in traditionally male jobs in trade and industry, vocational education programs such as agriculture and industrial arts. For example, one national study found 80 percent of females in vocational education enrolled in homemaking and consumer and office.** A variety of other studies documented that in the mid-1970's girls were severely overrepresented in traditionally female vocational programs. These programs help direct modern young women into traditional female positions with the corresponding low levels of skills, wages, and career opportunities.

With this background in mind, we asked LEAs about their efforts to promote sex equity in vocational education. Districts were asked if they had, during the current academic year (1979-80) expended funds on any special activities to promote sex equity in vocational education. Examples of special activities included assemblies, speakers, films, and workshops.

As Table V-21 indicates, 22 percent of secondary LEAs reported that they had expended funds for sex equity. At the postsecondary level, raters were higher; 40 percent of the districts reported expending funds in this area.

The proportion of districts undertaking activities to eliminate sex stereotyping in vocational education varied according to size of community. In large cities, a majority of secondary school districts reported carrying

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* Bureau of the Census, Social Indicators III: Selected Data on Social Conditions and Trends in the United States, Washington, 1980.

** Advisory Committee on the Rights and Responsibilities of Women, The Vocational Preparation of Women, Washington, Department of Health, Education, and Welfare, 1975.

Table V-21

Proportion of LEAs Expending Funds to Promote Sex Equity, 1979-80

	SECONDARY	POSTSECONDARY
Expended Funds for Sex Equity	22%	40%
Did Not Expend Funds	78%	60%
	100%	100%

Number of Districts = 554 (secondary), 205 (postsecondary).
Data Unavailable from 26 secondary and 6 postsecondary LEAs.

out activities. Almost 60 percent of districts in these urban areas said they had spent funds to promote sex equity. In rural areas, on the other hand, only 10 percent of the districts reported spending money on these activities. As Table V-22 indicates, sex equity expenditures in suburban towns and middle size cities fell in between these rates for rural and large urban LEAs. In small suburban towns, one-sixth of the LEAs undertook efforts to attract students to non-traditional programs. In middle size cities, this figure doubled to over one-third of the school systems.

This low level of effort, if representative, suggests that very few secondary students were exposed to programs aimed at eliminating sex stereotyping. Three-quarters of all the districts we studied did not report any activities. Moreover, when districts did undertake activities to promote sex equity, the programs tended to be modest. For example, we asked the districts which spent money on sex equity to list the cost and size of the program. Half of the school districts which reported expending funds spent $500 or less during the academic year. The range of expenditure was wide, from a low of $10 per year to a high of $60,000.

Table V-22
Spending Patterns of Districts of Sex Equity
By Size of Community
Secondary, 1979-80

Size of Community	Spent Funds for Sex Equity	No Funds Spent for Sex Equity	Total %	Number of Districts
CENTRAL CITIES	62%	38	100%	8
SUBURBAN RING	26%	74	100%	65
CITIES OVER 100,000	56%	44	100%	23
MIDDLE SIZE CITIES	43%	67	100%	100
SMALL SUBURBAN TOWNS	16%	84	100%	91
RURAL TOWNS	11%	89	100%	256

Table V-23 summarizes the expenditures reported by the secondary districts. As the table indicates, the distribution of the districts is relatively even across the differing categories. All together, the expenditures of the districts on sex equity in vocational education for the total sample of 580 secondary districts came to slightly under $300,000 in 1979-80.

Table V-23

Expenditures on Sex Equity, 1978-80 *
Secondary Level

Average Expenditures (in Dollars)		% of Districts in Each Category
10	150	22%
151	300	20
301	1,000	27
1,000	5,000	20
5,000	60,000	11
		100%

Number of Districts = 105

* As noted above, threequarters of the sample did not spend any funds on sex equity. Among districts reporting expenditures, one-sixth were unable to supply figures as to the dollars spent.

At the postsecondary level, sex equity activities were more substantial. Not only did a larger proportion of LEAs report supporting sex equity activites, but expenditures were substantially higher. The 75 LEAs reported expenditures ranging from $100 to $100,000, with a median expenditure of $4,800 -- almost ten times the comparable figure for secondary LEAs (Table V-24)

Table V-24

Expenditures on Sex Equity, 1979-80
Postsecondary Level

Average Expenditures (in Dollars)		% of Districts in Each Category
100	800	22%
800	3,000	19%
3,000	8,000	21%
8,000	22,000	23%
22,000	100,000	17%
		100%

Number of Districts = 75

Among those LEAs that did support programs to promote sex equity, involvement of students and staff was reasonably broad. Thus, as displayed in Tables V-25 and V-26, LEAs reported programs involving from four to 8,000 students, with half the secondary LEAs reporting more than 40 students participating, and half the postsecondary LEAs reporting more than 200 students participating. Staff involvement ranged from one to 500, with a median of 10 at both levels. At first glance, medians of 40 secondary students and 10 staff may appear low, but considering that

Table V-25

Total Number of Students Affected by Sex Equity Programs*
Secondary, 1979-80

Number of Students	% of Districts in Each Category
4 - 75	22%
76 - 150	20
151 - 375	22
376 - 2,000	23
2,001 - 8,000	13
	100%

Number of Districts = 69

*Three-quarters of the total sample did not have any sex equity expenditures. Among those districts with programs, a full 44 percent (55 districts) were unable to estimate the number of students involved in the programs. These districts were excluded from the calculations.

Table V-26

Total Number of Students Affected by Sex Equity Programs
Postsecondary, 1979-80

Number of Students	% of Districts in Each Category
1 - 69	18%
70 - 175	22
176 - 300	20
302 - 500	19
501 - 5,200	21
	100%

Number of Districts = 62

median vocational enrollment for the secondary sample was only 172, the figures are not especially low.

In addition to asking about activities to promote sex equity, we askied districts whether they had changed staffing patterns in order to improve the sexual balance of programs traditionally dominated by one sex. The proportion of districts which had reassigned teachers was very low. As indicated by Table V-27, only five percent of secondary and 20 percent of postsecondary districts stated that they had made such staffing changes. Among the few school districts which did reorganize staffing patterns, the number of teachers affected was low. The majority of districts had changes involving one teacher. The largest number of teachers involved in one district was six. All together, for the entire sample, fewer than 40 female teachers in secondary LEAs were hired or reassigned to non-traditional positions in vocational education. For

Table V-27

Percentage of Districts Hiring or Reassigning Staff
In Order to Promote Sex Equity, 1978-80

	SECONDARY	POSTSECONDARY
YES	5%	20%
NO	95%	80%
	100%	100%

Number of LEAs = 545 (secondary), 203 (postsecondary)
Data unavailable from 38 secondary and 8 postsecondary LEAs.

secondary schools, the figure for male teachers was even lower, with only seven teachers being transferred to non-traditional positions in the 580 districts examined.

At the postsecondary level, hiring or reassigning staff to promote sex equity was more impressive. One-fifth of the LEAs reported they had hired or reassigned staff to meet sex equity objectives. Thirty together reported hiring 39 female teachers to staff programs traditionally taught by men -- primarily in technical and trade and industrial programs.

Taken together, these results indicate that efforts at the local level to eliminate sex stereotyping and discrimination in vocational education are far from universal. About one-fifth of secondary and two-fifths of postsecondary LEAs reported organizing special acitivities to promote this issue. This conclusion is corroborated by data reported at the state level and displayed in the first part of this chapter. Data for 15 states sample that state and local agencies did not generally fund programs or services promoting sex equity in vocational education (aside from the $50,000 in federal dollars which they were required to use for creating a state level office of sex equity coordinator for vocational education). Funds for sex equity personnel, displaced homemaker services, support services for women, and day care services are all proper funding arenas under Section 120, but most states did not spend any money for these purposes. The states which did expend funds usually spent small amounts. None of the states reported spending more than one-half of one percent for these purposes.

Expenditures of other VEA funds, such as Section 130 funds, reveal a similar pattern. Most states do not report spending any funds for grants to eliminate sex bias, and the few that do report expenditures report small amounts. The highest level of spending in those sixteen states occurred in Illinois, where grants to overcome sex bias constituted 1.6 percent of the total budget (consisting of two percent of federal funds and .66 percent of state and local funds). Only one state spent a significant amount of federal funds to overcome sex bias; New York state reported that almost 10 percent of federal funds were allocated to that purpose.

Various factors have been proposed to explain the low level of effort to promote sex equity in vocational education. For example, during PONVER's site visits to large cities, individuals repeatedly stressed that it is difficult to interest the majority of girls to take courses in traditionally male programs, and conversely, to attract males to traditionally female programs. Often, school personnel see themselves as powerless in light of years of socialization, family pressures, sex role models and peer group pressures. Moreover, as we shall see in Chapter VI. whereas women are crowded into training programs where prospective wages are low, they are at the same time enrolled in programs for which chances of getting a job quickly and easily are good. To reduce sex stereotyping in training carries the risk that those women who shift over to non_traditional programs will face greater difficulty than their peers in traditional programs when entering the work force.

Other individuals offer different explanations. Some criticize schools for making half-hearted efforts. Open enrollment policies are not enough, claim some individuals, but must be accompanied by a supportive environment and counseling. Some publications cite research indicating that females in non-traditional programs have a lower drop out rate when the program is accompanied by guidance and counseling.*

In short, these survey results and analyses of enrollment data indicate the sex inequality in vocational education programs continues to be a serious problem. Despite federal legislation, most female vocational students continue to face serious hurdles to obtaining high quality training and occupational opportunities. At the same time federally supported programs to promote sex equity have been given little support at the state level and have reached a relatively small number of LEAs.

D. Funds Coordination: CETA and VEA

One of the concerns in the 1976 reauthorization of the federal Vocational Education Act was developing stronger ties between vocational education agencies and other agencies with similar purposes, especially those receving federal funds through other federally supported programs. Primary attention concentrated on CETA.

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* Looney, Ginny, The Unfulfilled Promise of Vocational Education, Atlanta, Georgia, 1980.

The lack of coordination between CETA and vocational education establishments was frequently discussed in hearings concerning reauthorization. Many persons testified to striking examples of poor communication and duplication of services. CETA and vocational education were accused of engaging in the same task, in the same city, and aimed at the same pool of individuals, without any interagency coordination. Critics noted that vocational education and CETA have different, but very complementary approaches for the same goal. Vocational education in public schools provides students with general education training, with attention to students' basic skills. This attention to students' general educational needs has many advantages and may improve the students' long term occupational prognosis. The quality of vocational training, however, especially in the comprehensive high schools, has been the subject of much criticism. The programs are seen as not sufficiently in-depth, lacking in "hands-on" training, and with poor connections to the world of work.

By contrast, CETA places trainees in occupational settings. CETA participants are given actual work experience and receive payment for their work. In contrast to vocational education programs, however, CETA provides no general academic training. Should the student's CETA position fail to lead to a permanent position, and if the student lacks basic academic skills, the CETA program may be of limited value in aiding the individual to secure entry to a promising occupational arena.

With similar goals, similar populations, and complementary approaches, it was thought that CETA and vocational education agencies had a strong basis for better ties. Numerous examples of poor planning, disorganization, and wastefulness were cited. For example, in Los Angeles, California, CETA and public school vocational education programs operated across the street from one another, both operating undersized classes, while in other parts of the city large numbers of people were not served.

Responding to this criticism, the 1976 Vocational Education Act required that vocational education agencies undertake coordination with CETA. In particular, it required that the state plans for vocational education discuss the ways in which vocational education programs would be integrated with CETA programs. States are required to

> set out criteria which have been developed for coordinating manpower training programs conducted by prime sponsors established under the Comprehensive Employment and Training Act of 1973 with vocational education programs assisted under this Act and for coordinating such vocational education programs with such manpower training programs. (P.L. 94-482, Section 107(b)(5)).

In addition, CETA legislation mandated inter-agency coordination. The "prime sponsor" (the funding agency for CETA, typically a county) was to include secondary and postsecondary institutions in its work. In certain programs, CETA prime sponsors are directed to provide funds to public school programs. For example, 22 percent of CETA prime sponsor's budget from the Youth Employment Demonstration Project Act (YEDPA) is to be spent on programs for in-school youth. As a prime sponsor might be responsible for an area which includes several school districts, not every district may receive funds. It was clearly Congress' intent, however, that CETA and vocational education would coordinate in developing programs and services for in-school youth.

In our research, we attempted a limited assessment of coordination between CETA and vocational education. Part of our research on this issue relied on site visits to seven large cities and interviews with a few CETA officials. The results of these site visits are discussed separately. Here we report the findings of the survey, which concentrated on LEAs' use of federal funds other than VEA for supporting vocational education. First, we asked the LEAs if they had received any funds authorized by CETA in 1978-79. As Table V-28 indicates, 40 percent of the secondary and 60 percent of the postsecondary LEAs received CETA funds. Larger LEAs were much more likely to be receiving CETA funds. As displayed in Table V-29, 74 percent of the secondary LEAs serving cities with populations over 100,000 persons and seven central

Table V-28

Proportion of Districts Receiving CETA Funds, 1978-79

	SECONDARY	POSTSECONDARY
Received CETA Funds	40%	77%
Did Not Receive CETA Funds	60	23
	100%	100%

Number of LEAs = 551 (secondary) and 210 (postsecondary).
Data unavailable from 24 secondary and 1 postsecondary LEAs.

cities reported receiving CETA funds. On the other hand, less than 30 percent of rural communities and only 33 percent of small suburban towns received CETA funds. Among secondary LEAs, the amount of funds ranged from as little as $300 in two school districts to almost $25 million in the largest school systems. For half of the secondary districts, the amount of CETA funds received was less than $28,000 per year. Approximately three-quarters of the secondary districts received less than $10,000. For most postsecondary LEAs, CETA grants were somewhat larger, ranging from $900 to over $5 million. The median grant totaled $87,000 three times the comparable secondary figure, and a third of the postsecondary LEAs received more than $100,000 in CETA funds.

The number of school systems receiving funds for in-school youth under the Youth Employment Demonstration Act (YEDPA) was smaller. Only 13 percent of the secondary school systems and 18 percent of postsecondary schools systems reported obtaining funds from CETA for this purpose (Table V-30). As Table V-31 indicates, the proportion of secondary schools receiving funds varied by strata. School systems in urban areas were more likely to receive funds than districts in rural areas. For example, 42 percent of larger cities received funds under YEDPA, while only six percent of rural districts received YEDPA funds.

As a rule, YEDPA grants were quite small. The amount of total YEDPA funds received by the secondary LEAs ranged from $700 to $5.25 million, but half the LEAs received $30,000 or less. In three-quarters of the secondary LEAs, YEDPA funds did not exceed $125,000 per year. Postsecondary funds for YEDPA ranged from $2,000 to $1.2 million. Half

Table V-29

Percentage of LEAs Receiving CETA Funds
By Size of Community
Secondary Level Only

Size of Community	Received CETA Funds	Did Not Receive	Total %	Number of Districts'
CENTRAL CITIES	88%	12	100%	8
SUBURBAN RING	54%	40	100%	63
CITIES OVER 100,000	74%	26	100%	23
MIDDLE SIZE CITIES	60%	40	100%	110
SMALL SUBURBAN TOWNS	33%	67	100%	91
RURAL TOWNS	29%	71	100%	255
TOTAL	40%	60	100%	550*

*Figures unavailable from 30 districts.

of the 34 LEAs receiving YEDPA funds reported grants of less than $50,000. The number of students participating in these in-school YEDPA funded programs ranged from one to 2,600, but for half the districts, the number of students enrolled in the program was 60 or less. All together, 8,200 secondary and 4,093 postsecondary students participated in the program, among the 791 school districts in our sample.

The survey also asked LEAs to report the amount of YEDPA funds spent on vocational education as opposed to other programs or services. Of the 73 secondary districts receiving YEDPA funds, fewer than 50 could estimate the proportions spent for vocational education. Of these, about two-thirds stated that 100 percent of YEDPA funds were spent for

Table V-30

Percentage of LEAs Receiving Youth Employment Demonstration Project Act Funds from CETA 1978-79

	SECONDARY	POSTSECONDARY
Received YEDPA Funds	13%	18%
Did Not Receive YEDPA Funds	87	82
	100%	100%

Number of LEAs = 548 (secondary) and 203 (postsecondary).

Table V-31

Percentage of Districts Receiving Youth Employment Demonstration Project Act Funds from CETA By Size of Community Secondary Level Only

Size of Community	Received Funds	Did Not Receive Funds	Total %*	Number of Districts
CENTRAL CITIES	75%	25	100%	8
SUBURBAN RING	15%	85	100%	65
CITIES OVER 100,000	30%	70	100%	23
MIDDLE SIZE CITIES	23%	87	100%	99
SMALL SUBURBAN TOWNS	11%	89	100%	91
RURAL TOWNS	7%	93	100%	252
TOTAL	13%	87	100%	548**

*Figures may not total 100% due to rounding.
**Data unavailable for 32 districts.

vocational education. Among postsecondary LEAs, half reported spending 100 percent of the grant on vocational education. A few districts devoted considerably less money to vocational education. For example, 15 percent of secondary districts with YEDPA funds reported that less than half of their CETA-YEDPA funds were used for vocational education. While few districts reported receiving funds, it appears that once received, the majority did direct YEDPA to vocational education. This conclusion is a tentative one, however, as the small number of districts reporting YEDPA funds raises questions as to the stability of the findings.

The survey also examined expenditures for vocational education from funds under the Governor's Special Grant for Vocational Education. At the secondary level, the number of school systems receiving funds was quite low. Only three percent of the secondary LEAs reported receiving such funds during the 1978-79 school year. The amount of funds received ranged from $900 to slightly over $600,000, with a median of $45,000. For postsecondary institutions, however, the proportion was higher. Over one-fifth of these districts reported receiving CETA funds through the Governor's Special Grant for Vocational Education. The amount of funding in these LEAs ranged from $355 to $400,000. The median grant was approximately $49,000, a figure comparable to the typical grant to secondary LEAs.

To summarize, these findings suggest that a relatively small number of LEAs use CETA funds for vocational education. Only one-third of the secondary LEAs received CETA funds, and a substantially smaller number, 13 percent, received funds through the 22 percent allocation of YEDPA. The number of LEAs receiving YEDPA funds is surprisingly low. There are a number of possible explanations. Prime sponsors could be targeting these funds to a small number of districts in order that they have the greatest impact. Or, vocational programs in districts we studied could be receiving funds but be unaware of it. Another possibility is that prime sponsors may be using YEDPA funds in LEAs for educational purposes other than vocational education. Other research being conducted by NIE on the CETA-vocational education linkage may suggest other explanations.

E. Funds Distribution Under Contracts to Private Agencies

The Vocational Education Act authorizes public schools to utilize federal funds to provide vocational education within private schools. However, these arrangements are subject to certain conditions. Federal legislation states that vocational education contracting with private institutions must further the objectives of the state plan. In addition, legislation states that contracting may be authorized when private institutions can provide equivalent training at a lesser cost or provide equipment and services not available within public institutions. The law authorizes funds for the

> provision of vocational training through arrangements with private vocational training institutions where such private institutions can make a significant contribution to attaining the objectives of the State plan, and can provide substantially equivalent training at lesser cost, or can provide equipment or services not available in public institutions... (Section 122(a)(7) (20 U.S.C. 1262(a)(7)).

In instituting this provision, the Committee on Education and Labor stated that administrative difficulties led then to assign a voluntary rather than mandatory status to the practice. Nonetheless, it was the Committee's intention that private vocational institutions be utilized to the maximum degree feasible:

> ...it is the intention of the committee that the maximum feasible use be made of existing private capabilities in this field, in order that available funds may best be used to expand course offerings, provide training opportunities for more students and reduce costs. In short, the committee desires to expand high quality vocational opportunities without regard to whether they are made available through public or private facilities...

Contracts between public and private schools have been reported to offer several advantages. With contracting, funds may be utilized more efficiently, by avoiding duplication of facilities and staff. Contracts with private institutions increase the breadth of public school vocational training. Contracting also provides schools with the flexibility to experiment with new vocational programs without making a large investment.

Disadvantages of placing public school students in private institutions by contracting have also been noted. Some question the quality of some private vocational training institutions. While many private schools are recognized as offering fine programs, others are seen as poorly organized, "fly-by-night" operations. Proprietary institutions have been criticized for luring students in under false advertising, providing poor training programs, and failing to coordinate training levels with labor market needs.

Although Congress did explicitly permit the utilization of federal vocational education funds for contracts with private institutions, implementation of this goal has not been systematically examined. Indeed, individuals within proprietary schools have complained bitterly about the lack of public and private coordination in occupational training. They state that public schools look askance at proprietary institutions and refuse to consider contracting. One study did examine state and federal regulations on this topic.* The research, done in 1978, investigated state and local regulations concerning contracting with private vocational instruction. The study found only a small number of states clearly authorized both the state and the LEA to enter into contracts. Some states allowed the state board to contract, but forbade the LEA from entering the agreement. Other states were ambiguous on the matter, and a few states clearly did not allow contracts. While this study examined status and regulations concerning contracting, it did not examine the actual levels of contracting undertaken. In our research, we asked secondary LEAs if they undertook contracts in vocational education and the size and scope of these contracts.**

We found relatively low levels of contracting between private agencies and public schools. Only seven percent of the districts reported engaging in contracts with non-public schools (Table V-32). While the participation level was generally quite low, urban and suburban school districts did have somewhat higher levels of contractual agreements. For example, of the 77 districts in our sample located in large cities or the suburban ring of large cities, 21 percent reported engaging in contracts with private schools. Among rural communities, with less than 10,000 inhabitants, only three percent of districts contracted with private schools. All together, only 32 districts in our sample reported undertaking contracts for vocationa education with private schools.

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* Gaffney, Michael, Laura Medina, and Robert J. Harper, A National Study of State and Vocational Training Sources for Vocational Instruction. Washington, Educational Testing Service, 1978.

**Discussions with state directors, who reviewed the survey instruments, indicated private contracting, insofar as it was practiced at all, was confined mainly to the secondary level. Consequently, to minimize data burden, the contracting questions were eliminated from the postsecondary questionnaire.

This small number of districts reporting contracting with private

Table V-32

Proportion of Districts Contracting With
Private Agencies for Vocational Education*
By Size of Community

Size of Community	Did Contract	Did Not Contract	Total %	Number of Districts
CENTRAL CITIES	29%	71	100%	7
SUBURBAN RING	16%	84	100%	50
CITIES OVER 100,000	30%	70	100%	20
MIDDLE SIZE CITIES	7%	93	100%	99
SMALL SUBURBAN TOWNS	7%	93	100%	87
RURAL TOWNS	3%	97	100%	266
TOTAL	7%	93	100%	535*

*Data unavailable from 49 districts, including 45 districts in Massachusetts which were not asked this question, as Massachusetts state regulations do not allow this type of contractual arrangement.

schools cannot, of course, provide a representatvie picture of public-private contracting in the nation. It is interesting, however, to examine the other information which we collected on this topic. The contracts with private agencies appear to be very limited. For example, 50 percent of the contracts with private agencies were for a sum less than $8,500. Three-quarters of the contracts were for amounts under $26,000. As Table V-33 indicated, the range of expenditures was from $550 to $200,000. In only a few districts, however, did expenditures with private agencies total more than $50,000.

Enrollment under private contracts was also quite low. The majority of contracts include fewer than 50 students and onehalf of the programs enrolled fewer than 25 students. The contracts did show variation, with districts reporting anywhere between two and 911 of their students with contracts placed approximately 2,500 students in private agencies The cost per student of providing this vocational training varied from $55 to $1,030 per student. The average cost per student experienced by the districts, however, was $705.

Thus, we found relatively few districts, few students, and few dollars being placed in contractual arrangements with private schools. These results corroborate our other findings on contracting (described in a forthcoming PONVER report). Contracting with private agencies appears to remain at relatively low levels, with only a limited number of districts carrying through Congressional wishes. At this point, we are unable to estimate the causes and consequences of this pattern. Some public school administrators report that contracting with private agencies is not feasible due to state and local regulations, the lack of available facilities, or the relatively high cost of private school vocational training. Proprietary school owners complain, on the other hand, that their facilities are underused and that public schools are unwilling to consider coordination with the private sector.

It is noteworthy that districts report engaging in contracts with other public school districts at rates significantly higher than with the private sector. Almost one-half of the districts reported contracting with one or more other districts in 1978-79. The enrollment under these contracts ranged from one student to over 30,000 with the median enrollment being 43 students. Contracting with other districts occurred in the majority of districts in small and medium size cities in metropolitan areas. Most districts in central cities on the other hand, did not report undertaking contracts with other districts.*

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* In all probability, these contracts with other districts reduced duplication, increased coordination of programs, and expanded a district's offerings in vocational education. Unfortunately, we were not able to collect further information on these and other related topics.

Table V-33

Size of Contracts Between Public and Private Agencies in Vocational Education Secondary Level

EXPENDITURES		
Payment to Private Agency in Dollars	Cumulative Percent	Number of Districts
0 - 2,500	20%	6
2,501 - 6,000	41%	6
6,001 - 15,000	56%	6
15,001 - 40,000	81%	7
40,001 - 200,000	100%	7
		32

ENROLLMENT		
Total Enrollment Private Agency	Cumulative Percent	Number of Districts
0 - 5	21%	7
6 - 18	41%	7
19 - 30	65%	8
31 - 100	82%	6
101 - 1,000	100%	6
		34

Recapitulation of Survey Highlights

In the second half of this chapter we have covered a great deal of materila in detail. Accordingly, we offer here a restatement of what we regard as key points in the analysis of special topics in funds distribution.

-Twenty percent of secondary and three percent of postsecondary respondents reported that their total budget, including VEA funds, was used to maintain existing programs.

-Thirty-eight percent of secondary and 48 percent of postsecondary LEAs reported using at least seven percent of their total budget to improve programs.

-About one-fourth of the secondary respondents and one-half of the postsecondary respondents reported making program changes -- either adding, expanding, reducing, or discontinuing programs in FY 1979.

-Sixty-four percent of secondary LEAs said they had handicapped students mainstreamed in regular vocational programs, but only 22 percent of all secondary respondents said they incurred excess costs for mainstreamed students. Twenty-two percent said they incurred excess costs for handicapped students enrolled in special programs.

-Eighty percent of postsecondary LEAs reported having handicapped students mainstreamed in regualr vocational programs. Thirty-seven percent said they incurred excess costs for mainstreamed students, and 29 percent reported excess costs for handicapped student in special programs.

-Over 70 percent of secondary and 90 percent of postsecondary LEAs had disadvantaged students participating in regualr vocational programs, but only 23 percent and 42 percent, respectively, incurred excess costs for these students.

-Seventeen percent of secondary and 50 percent of postsecondary LEAs said they had vocational education students with limited English proficiency, but only four percent and 20 percent, respectively, said they incurred excess costs for these students.

-In half the secondary LEAs incurring excess costs, total federal assistance to cover these costs was less than $3,550 for mainstreamed handicapped students, less than $6,000 for mainstreamed disadvantaged students, less than $11.000 for handicapped students in special programs, less than $15,000 for disadvantaged students in special programs, and less than

$5,500 for students with limited English proficiency. Comparable figures for postsecondary were typically two to three times higher.

-Twenty-two percent of secondary and 40 percent of postsecondary LEAs reported spending funds to promote sex equity. In half of these secondary LEAs, expenditures amounted to less than $500; in half the postsecondary LEAs, expenditures were less than $4,800.

-Five percent of the secondary and 20 percent of the postsecondary LEAs said they had hired or reassigned teachers to promote sex equity.

SUMMARY OBERSERVATIONS

Some readers of this chapter may conclude that local agencies leave done far too little to comply with Congressional intent toward reform of vocational education. On the other side, it may be noted that what Congress appeared to want in 1976 is somewhat difficult for teachers and administrators to provide. School workshops, just like workshops in private industry, are often times dangerous places, especially for people who have physical handicaps and especially if trainees are prepared to use tools as weapons, as some would claim disadvantaged student may be. To introduce handicapped and disadvantaged persons into a training workshop, likely pervaded with working class attitudes and values, is a feat of no mean proportions, just as is the placing of women into non-traditional programs. Additionally, the vocational education community prides itself on its placement rate and enrollment of members of target populations may be seen as posing a threat to maintaining a superior placement record.

Having said these things we still regard the analysis of the functional distribution of vocational education funds to reveal a very low and disappointing degree of compliance with Congressional intent. If Congress continues to hold the objectives for vocational education that it held in 1976-77, other objectives similarly difficult to achieve then it would seem to need to do one or the other of two things: (1) think much harder about how to manipulate the incentive structures of local agencies or (2) appropriate substantially more Federal dollars for occupational training.

Chapter VII

Program Participation and Program Offerings

In the 1976 Amendments to the Vocational Education Act, Congress declared that, among other aims, the purpose of federal grants for vocational education is to assist states

> ...so that persons of all ages in all communities of the State, those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market, but need to upgrade their skills or learn new ones, those with special education handicaps, and those in postsecondary schools, will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.
> (P.L. 94-482, Section 101.)

Analyzing data from ten states, in this chapter we examine who is served by vocational education and what they are offered. In Section I, we look at the participation of secondary students, postsecondary students, and adults. We describe enrollments by race and sex, as well as the participation of handicapped and disadvantaged students, including those with limited English proficiency. In Section II, in a smaller number of states, we examine differences in program quality and the characteristics of students in high and low quality programs.

I. Who is Served by Vocational Education?

A. Participation by Level of Program. The Vocational Education Data System (VEDS) continued the practice of distinguishing among three different types of enrollment -- secondary, postsecondary, and adult.

Identifying secondary students is fairly straightforward. States report vocational education enrollments in grades eleven and twelve and enrollments below grade eleven; the latter typically are limited to grades nine and ten, but may include some lower grades in a few states. Postsecondary students are those enrolled in vocational programs that earn credit toward an associate degree. Other students enrolled in non-degree vocational programs or pursuing a certificate or license are considered adults. Further, VEDS asks states to report separately long-term adults, students enrolled in programs requiring at least 500 contact hours of preparation, and short-term adults enrolled in programs requiring fewer than 500 contact hours.

Table VII-1 displays the distribution of enrollments among these various types of programs in the ten states selected for study. Secondary students account for as little as 47 percent of all vocational students in Colorado and Oklahoma to as much as 85 percent in Massachusetts and New Hampshire. Much of the enrollment below grade eleven consists of consumer and homemaking education, industrial arts, and pre-vocational programs. If only enrollments in grades eleven and twelve are considered at the secondary level, the secondary share of vocational education ranges from 22 percent in North Carolina to 81 percent in Massachusetts.

The postsecondary share ranges from zero in South Dakota, where all non-secondary vocational education students are considered adults, to 28 percent in California. Typically, short-term adults far outnumber long-term adults, and the two categories together account for as little as two percent of total enrollments in New Hampshire to as much as 45 percent in North Carolina.

Table VII-1

Distribution of Vocational Education Students By Secondary, Postsecondary, and Adult Programs FY 1979

	SECONDARY		POSTSECONDARY	ADULT		TOTAL NO.
	Below Grade 11	Grades 11-12		Long-term	Short-term	
CALIFORNIA	19.0	32.7	28.0	10.2	10.0	1,869,684
COLORADO	13.6	33.9	13.2	18.4	20.9	145,732
FLORIDA	38.6	21.5	05.5	08.7	25.8	1,152,424
ILLINOIS	31.2	38.1	17.5	04.5	18.8	802,153
KANSAS	23.9	33.5	08.4	12.4	21.9	111,598
OKLAHOMA	25.0	21.7	19.8	02.2	31.4	202,973
PENNSYLVANIA	18.5	41.0	09.9	04.0	26.7	441,687
SOUTH DAKOTA	38.5	40.3	00.0	10.6	10.6	28,801
TEXAS	29.8	23.6	14.4	04.7	27.5	1,074,022
UTAH	38.0	36.0	22.6	00.9	02.6	85,792
U.S. Total	29.0	31.6	11.4	5.7	22.3	16,827,734

B. Enrollments by Race and Sex

Tables VII-2 and VII-3 display the race and sex compositions of vocational education in secondary and postsecondary programs. Because of large female enrollments in consumer and homemaking education and in business and office programs, girls typically outnumber boys in secondary vocational education. In postsecondary programs, however, the reverse is more often true.

Minority representation in vocational education varies greatly among the states, reflecting largely the differences among states in the proportion that minorities represent of the total population. Because of such differences, interstate comparisons of minority representation cannot rely on simple proportions. Rather it is necessary to compare minority representation in vocational education relative to minority representation in the population as a whole.

To permit such analysis, we constructed an index of proportionate representation. For the secondary level, this index is the percentage of a particular minority group enrolled in vocational education divided by the percentage of that group enrolled in grades nine to twelve. For example, if black students constitute 10 percent of students enrolled in vocational education and 15 percent of all students enrolled in grades nine to twelve, then the index of proportionate representation equals .67 (10 ÷ 15). On the other hand, if black students constitute ten percent of vocational enrollments but eight percent of secondary enrollments, the index would equal 1.25 (10 ÷ 8). Consequently, relative to proportions in the larger student body, a score of less than

Table VII-2

Distribution by Race and Sex of Students Enrolled in Vocational Education Secondary, FY 1979

	% MALE	% FEMALE	% NATIVE AMERICAN	% BLACK	% ASIAN AMERICAN	% HISPANIC	% WHITE
CALIFORNIA	45.2	54.8	.6	10.2	3.7	18.6	67.0
COLORADO	42.5	57.5	1.0	4.3	.7	14.6	79.4
FLORIDA	41.7	58.3	.2	20.0	1.0	8.4	70.1
ILLINOIS	49.7	50.3	.1	17.1	.6	3.5	78.7
KANSAS	40.7	59.3	1.4	8.7	.7	2.2	87.0
OKLAHOMA	N.A.	N.A.	8.3	7.4	.6	.9	82.8
PENNSYLVANIA	40.9	59.1	.2	10.3	.2	.8	88.5
SOUTH DAKOTA	68.0	32.1	3.2	.1	.2	.2	96.3
TEXAS	67.6	32.4	.2	10.9	.1	15.7	73.2
UTAH	49.3	50.7	1.0	.3	.7	2.2	95.8

Table VII-3

Distribution by Race and Sex of Students Enrolled in Vocational Education Postsecondary, FY 1979

	% MALE	% FEMALE	% NATIVE AMERICAN	% BLACK	% ASIAN AMERICAN	% HISPANIC	% WHITE
CALIFORNIA	52.1	47.9	1.1	9.1	4.8	10.1	74.8
COLORADO	56.8	43.2	1.1	5.7	1.5	8.1	83.6
FLORIDA	46.7	53.3	.4	16.1	.9	7.3	75.4
ILLINOIS	47.3	52.7	.4	16.2	1.2	2.7	79.5
KANSAS	45.0	55.0	.7	3.3	1.0	1.6	93.5
PENNSYLVANIA	49.1	50.9	.2	11.5	.6	.6	87.1
SOUTH DAKOTA	63.7	36.3	2.7	.1	.3	.2	92.8
UTAH	65.0	35.0	1.9	.6	3.5	2.6	91.6

one on this index indicates underrepresentation in vocational education; a score greater than one indicated overrepresentation.[*]

Table VII-4 displays scores on this index for secondary programs. Generally, in states where a particular minority group represents a significant portion of the total population, say more than three percent, the group is either underrepresented or proportionately represented. There is only one case of significant overrepresentation, occurring in Florida for Hispanics (a score of 1.17). Interestingly, in the five states where black students comprise more than 10 percent of the general student body -- California, Florida, Illinois, Pennsylvania, and Texas -- black students are underrepresented in vocational education (scores of .85, .96, .72, .82, and .71, respectively).

This pattern changes somewhat if enrollments are examined by size of LEA. Table VII-5 summarizes scores for the largest cities in the ten states, and Table VII-6 displays scores for these states' rural LEAs. Black students are overrepresented in vocational education in Los Angeles, Denver, and Topeka. At the same time, whites are significantly overrepresented in Chicago, Philadelphia, and Salt Lake City. In rural areas, blacks and Hispanic students generally are underrepresented in vocational education.

Turning to the postsecondary level, the picture changes (Table VII-7). In most states with significant numbers of black students, blacks are overrepresented in vocational education. As a rule, males are also overrepresented, and the pattern of higher participation by males holds across racial and ethnic lines.

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[*] The index for representation by sex was computed in the same fashion. However, lacking data on the actual representation of women in the larger population, we assumed 50 percent and used this figure in the denominator.

Table VII-4

Index of Representaion by Race and Sex of Students Enrolled in Vocational Education Secondary, FY 1979

	% MALE	% FEMALE	% NATIVE AMERICAN	% BLACK	% ASIAN AMERICAN	% HISPANIC	% WHITE
CALIFORNIA	.90	1.10	.62	.85	.82	.94	1.06
COLORADO	.85	1.15	1.74	1.02	.71	1.01	.99
FLORIDA	.83	1.17	.86	.96	1.34	1.17	.99
ILLINOIS	.99	1.01	.44	.72	.82	.64	1.13
KANSAS	.81	1.19	1.38	.98	.98	.83	1.00
OKALHOMA	N.A.	N.A.	.81	.78	1.09	.60	1.05
PENNSYLVANIA	.82	1.18	.63	.82	.50	.64	1.03
SOUTH DAKOTA	1.36	.64	.69	.28	.31	.12	1.04
TEXAS	1.35	.65	1.18	.71	.13	.63	1.24
UTAH	.99	1.01	.65	.57	.80	.57	1.03

Table VII-5

Index of Representation by Race of Students Enrolled In Vocational Education in the State's Largest City Secondary, FY 1979

	NATIVE AMERICAN	BLACK	ASIAN AMERICAN	HISPANIC	WHITE
LOS ANGELES	.46	1.27	.73	.91	.95
DENVER	1.15	1.27	1.05	.90	.94
MIAMI-DADE	1.86	1.03	1.81	1.16	.85
CHICAGO	.69	.94	1.00	.75	1.30
TOPEKA	2.20	1.52	2.17	1.12	.84
OKLAHOMA CITY	1.00	.98	.75	.90	.87
PHILADEPHIA	6.85	.94	.55	.64	1.19
RAPID CITY, S.D.	.57	N.A.	1.03	1.90	1.01
HOUSTON	1.33	1.06	.27	.87	1.03
SALT LAKE CITY	.09	.22	.26	.13	1.16

Table VII-6

Index of Representation by Race of Students Enrolled
In Vocational Education in Rural School Districts
Secondary, FY 1979

	NATIVE AMERICAN	BLACK	ASIAN AMERICAN	HISPANIC	WHITE
CALIFORNIA	.67	.84	.66	.72	1.09
COLORADO	1.25	.52	1.27	1.01	.99
FLORIDA	.84	.87	2.03	.66	1.06
ILLINOIS	.84	.90	.15	.56	1.00
KANSAS	.58	.50	.58	.52	1.01
OKLAHOMA	.74	.95	1.30	.61	1.05
PENNSYLVANIA	3.75	1.01	.57	1.16	.99
SOUTH DAKOTA	.70	.11	N.A.	.20	1.03
TEXAS	2.22	.84	.67	.66	1.16
UTAH	.53	.85	1.03	.51	1.03

Table VII-7

Index of Representation by Race and Sex of Students Enrolled in Vocational Education Postsecondary, FY 1979

	MALE	FEMALE	NATIVE AMERICAN	BLACK	ASIAN AMERICAN	HISPANIC	WHITE
CALIFORNIA	1.11	.89	.67	.92	.84	.96	1.04
COLORADO	1.14	.86	.58	1.07	1.18	.85	1.04
FLORIDA	1.05	.95	1.16	1.33	1.33	.84	.96
ILLINOIS	1.06	.94	.92	1.13	1.01	1.10	.98
KANSAS	.90	1.10	.63	.72	5.0	1.83	1.00
PENNSYLVANIA	.98	1.02	N.A.	N.A.	N.A.	N.A.	N.A.
SOUTH DAKOTA	1.27	.73	N.A.	N.A.	N.A.	N.A.	N.A.
UTAH	1.30	.70	N.A.	N.A.	N.A.	N.A.	N.A.

These comparisons based on aggregate data for vocational education do not reveal large differences in participation rates among programs. Tables VII-8 through VII-8C display participation by race and sex in the largest programs accounting for 75 percent of total secondary enrollment in vocational education in each state. As a rule, girls are significantly overrepresented in consumer and homemaking education programs. Boys overwhelmingly dominate trade and industrial programs, with the exception of cosmetology, and the largest agriculture programs. If one were to consider programs sexually balanced when they contain from 40 to 60 percent girls, balanced programs are found mainly in distributive education and in some office and consumer and homemaking programs (especially consumer education).

Strong patterns are also present for the participation rates of minorities. Generally. black students are overrepresented in occupational consumer and homemaking, some office programs (e.g., general office programs in Illinois and accounting in Illinois and Colorado), and some distributive education programs (e.g., general merchandising in Illinois). Underrepresentation of black students is especially obvious in most trade and industrial programs. If one uses a standard of plus or minus ten percent of the mean participation rate for black students, relatively few programs are racially balanced in states with significant numbers of black students.

Variation in the participation rates of other racial and ethnic minorities is less pronounced. Thus, Hispanic students are proportionately represented in most programs in all three states. The

Table VII-8

CALIFORNIA
Participation by Race and Sex in Largest Programs* in the State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
AGRIPROD	10100	8293	34.43	85.42	1.68	10.83	1.12	.95
GENMERCH	40800	7710	61.33	62.86	12.69	19.57	4.44	.44
COMPHMEC	90901	33278	73.62	70.87	8.09	17.25	2.96	.83
CHILDDEV	90102	10951	90.26	63.05	13.60	20.59	2.16	.60
CLOTHTEX	90103	22626	95.60	52.80	20.90	22.03	3.63	.65
CONSUMED	90104	13893	61.38	68.52	8.33	19.01	3.65	.49
FAMLREL	90106	10232	73.53	71.77	9.08	16.32	2.46	.37
FOODNUT	90107	32197	66.96	57.44	18.27	20.50	3.25	.54
DRAFTING	100300	14948	10.21	64.77	9.20	20.03	5.53	.47
METALS	101400	8689	2.81	72.40	6.99	17.86	1.90	.85
AUTOMECH	101600	16447	7.41	78.09	3.64	14.32	3.40	.55
WOODS	101900	12887	9.12	75.07	6.12	15.78	2.30	.73
ACCOUNT	140100	28253	66.30	67.63	10.58	15.47	5.79	.53
GEN.OFF.	140300	52054	76.86	66.13	8.40	21.19	3.63	.66
GENOFFCL	140303	10587	70.65	69.79	6.93	15.03	7.59	.67
SECY OCC	140700	28359	91.14	65.97	9.26	19.77	4.56	.44
TYPING	140900	39784	76.21	65.25	9.67	19.26	5.23	.59
AUTOMECH	170302	20909	4.47	63.06	11.57	21.61	3.27	.49
TRONOCCP	171500	7607	4.39	50.02	22.80	22.41	4.52	.25
GRAPHART	171900	8517	20.50	47.72	24.64	24.14	3.11	.39
WOODWORK	173600	9879	4.62	52.80	18.26	26.47	2.20	.27
	190200	56961	50.10	76.27	4.76	15.27	3.19	.51

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* Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-8A

COLORADO
Participation by Race and Sex in Largest Programs* in the State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
DISTEDUC	40000	3952	59.89	80.19	2.88	15.16	.58	1.19
HOMEMKG	90100	13280	69.49	77.39	4.93	15.67	.85	1.16
OCCPREP	90299	1263	78.15	71.81	11.08	15.84	.63	.63
ACCOUNT	140100	2700	67.24	81.39	5.08	12.50	.74	.29
GENOFFIS	140300	9875	82.66	80.31	4.82	13.43	.76	.68
SEC.STEN	140700	4917	91.53	81.71	1.77	14.48	.68	1.36
AUTOMECH	170302	2650	2.11	81.49	1.30	14.74	.63	1.85
WELDING	172306	1465	1.12	82.65	.93	15.49	.09	.84
ALL 11th & 12th GRADE PROGRAMS		48317	57.54	79.43	4.30	14.59	.70	.97

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*Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-8B

FLORIDA

Participation by Race and Sex in Largest Programs* in the State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
FOODSERV	40700	5163	55.10	74.21	21.05	3.81	.82	.11
GENMERCH	40800	16271	53.76	78.36	15.53	5.47	.51	.13
PERSSERV	41500	4037	45.20	75.53	17.21	4.30	2.82	.14
REALEST	41700	4094	42.00	80.00	6.00	8.00	6.00	0
RECSERV	41800	3885	42.11	74.77	16.25	6.66	2.32	0
PRACNURS	70302	9230	92.45	81.13	16.98	1.89	0	0
COMPHOME	90101	6717	76.17	45.85	41.21	12.46	.44	.04
CHILDDEV	90102	8207	87.50	16.40	28.47	4.69	.41	.04
CLOTHING	90103	25466	93.46	51.96	43.01	4.28	.63	.10
CONSUMED	90104	4857	68.93	70.95	27.59	1.21	.45	0
FAMILY	90106	10684	72.93	69.48	26.11	3.76	.57	.08
FOODNUT	90107	23440	63.32	62.70	33.08	3.68	.52	.08
HOUSING	90109	4335	89.89	71.48	24.56	2.23	.50	1.24
CHLDCARE	90201	6397	94.67	58.51	37.44	3.21	.71	.08
CLOTHING	90202	7691	85.86	48.68	46.86	3.97	.41	.08
FOOD,MPS	90203	8440	61.64	47.71	49.09	2.89	.25	.06
HOMEFURN	90204	3581	82.52	62.05	36.67	1.07	.21	0
ACCCOMP	140100	4589	75.75	78.89	12.45	7.93	.66	.08
BOOKACCT	140102	25987	74.50	74.07	17.70	7.47	.64	.12
BUS. DP	140200	7044	65.81	69.19	19.18	10.98	.57	.08
GEN OFF	140300	23626	91.11	67.23	21.56	10.50	.54	.18
GENOFFCL	140303	5519	80.51	59.40	28.54	11.72	.29	.06

Table continued on next page.

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* Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-8B (cont.)

FLORIDA
Participation by Race and Sex in Largest Programs* in the State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
INFOCOMM	140400	7550	86.72	69.12	19.36	11.11	.36	.05
PERSONNL	140600	12969	58.12	69.06	17.91	12.60	.40	.03
SECY OCC	140700	20598	98.14	76.96	13.75	8.58	.67	.04
SUPMGMT	140800	8279	52.00	81.79	12.52	5.07	.58	.04
TYPIST	140902	52536	76.65	68.33	19.91	10.88	.80	.08
AIRCONDI	170100	5711	.51	66.37	16.24	16.75	.51	.13
BODYREP	170301	3841	1.06	69.82	24.71	5.14	.08	.16
AUTOMECH	170302	12893	2.97	76.36	13.29	9.64	.51	.20
CARPNTRY	171001	4916	2.36	78.63	19.36	1.77	.24	0
CONSTREL	171002	3614	2.11	79.85	16.54	3.01	.45	.15
DRAFTING	171300	4193	13.42	83.72	8.09	7.05	.99	.15
WELDING	172306	6222	1.81	78.05	18.33	3.51	0	.11
COSMETOL	172602	4578	97.53	70.00	11.58	15.05	2.34	1.01
LAWENFOR	172802	8507	35.85	62.20	26.34	11.46	0	0
ALL 11th & 12th GRADE PROGRAMS		292691	58.34	69.68	22.05	7.55	.61	.11

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* Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-8C

ILLINOIS
Participation by Race and Sex in Largest Programs* in the State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
AGRIPROD	10100	3952	9.67	99.22	.40	.25	.05	.08
AGRIMECH	10300	3141	3.69	98.99	.73	.32	.03	.03
GENMERCH	40800	12976	49.97	61.78	30.71	6.49	.90	.12
CHLDCARE	90201	8566	94.48	88.86	8.88	1.79	.35	.12
CLOTHING	90202	4704	[illegible]1.88	70.92	25.02	3.25	.63	.13
FOOD,MPS	90203	10574	68.59	81.95	15.38	2.09	.47	.11
BOOKACCT	140102	23981	59.94	65.44	26.80	6.90	.78	.09
COMPROG	140203	8727	53.34	44.61	44.65	8.85	1.78	.11
GENOFFCL	140303	9780	80.38	48.03	43.65	7.35	.84	.13
SECRETAR	140702	29888	88.26	86.36	10.87	2.26	.42	.10
CLKTYPST	140901	7956	86.29	83.85	13.54	2.16	.38	.08
AUTOMECH	170302	11216	6.94	89.52	8.10	1.91	.38	.08
CONSTTRD	171000	11530	3.43	88.64	8.30	2.89	.10	.07
DRAFTING	171300	7643	8.99	82.56	13.16	3.26	.95	.07
GRAPHART	171900	3946	28.69	80.36	11.91	4.64	2.91	.18
MACHSHOP	172302	3597	2.03	87.82	8.95	2.89	.31	.03
WELDING	172306	3107	2.96	87.58	10.04	2.22	.10	.05
ALL 11th & 12th GRADE PROGRAMS		219587	50.31	78.67	17.12	3.54	.59	.08

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*Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Note: In Illinois, data were reported for occupational programs, excluding non-occupational consumer homemaking and industrial arts. OUr list of largest programs therefore excludes these courses.

Table VII-9

CALIFORNIA
Participation by Race and Sex in Largest Programs* in the State
Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
ORNAHORT	10500	6073	39.59	83.27	3.47	6.82	5.38	1.05
GENMERCH	40800	12039	45.24	80.44	7.17	7.85	4.03	1.31
REALEST	41700	54500	42.55	81.28	7.03	6.35	4.38	.95
RECSERV	41800	6840	69.33	79.15	8.51	7.51	3.64	1.15
OTHINSTR	49900	5536	45.14	66.02	18.24	10.03	4.55	1.16
AA-NURS	70301	10668	90.25	78.07	10.33	5.82	5.01	.77
PRACNURS	70302	5303	90.14	77.92	7.75	9.22	4.05	1.06
MEDEMERG	70907	5301	30.99	84.02	5.47	7.17	1.92	1.41
OTHHLTH	79900	5590	70.38	75.01	8.77	9.12	5.83	1.27
HOMEMKG	90100	26149	71.12	64.19	11.26	17.42	6.20	.92
CHLDCARE	90201	22064	89.59	72.59	11.69	11.91	2.91	.90
ACCOUNT	140100	44953	56.27	74.34	9.10	9.38	6.46	.72
ACCTANTS	140101	8355	60.42	86.19	4.45	3.99	4.57	.80
COMPOPER	140201	9321	42.43	72.50	10.71	9.66	6.50	.63
COMPPROG	140203	8488	39.63	68.31	10.54	10.37	10.23	.55
OTH DP	140299	10351	48.55	71.04	12.70	7.84	7.86	.55
GEN.OFF.	140300	14378	77.19	71.09	10.20	10.88	6.89	.94
GENOFFCL	140303	8142	55.42	84.39	6.93	4.73	3.00	.96
INFOCOMM	140400	10797	52.11	70.11	17.88	8.32	2.34	1.35
PERSONNL	140600	7943	56.36	72.57	11.04	12.60	3.03	.76

Table continued on next page.

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* Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

Table VII-9

CALIFORNIA
Participation by Race and Sex in Largest Programs* in the State
Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
SECY OCC	140700	32016	88.69	62.97	15.49	15.86	4.57	1.12
SUPMGMT	140800	28308	43.58	73.50	11.39	9.56	4.54	1.01
TYPING	140900	6606	87.48	72.93	7.60	14.47	3.91	1.09
OTH OFF	149900	7400	52.45	81.05	5.47	8.14	4.01	1.32
ARCHTECH	160103	5909	19.39	77.02	5.11	11.20	5.77	.90
TRONTECH	160108	15510	12.96	71.11	7.04	9.61	11.42	.81
COPTECH	160605	24842	30.16	71.20	12.64	12.61	2.25	1.31
FLUIDPOW	160699	5993	28.68	71.35	11.76	9.41	6.51	.97
AUTOMECH	170302	13940	8.64	73.49	6.99	11.36	7.25	.93
COMMLART	170700	6415	56.70	78.16	5.42	10.85	4.33	1.23
COMMFOTO	170900	7451	41.00	75.52	7.15	11.39	4.93	1.01
CARPNTRY	171001	10794	3.02	83.31	3.23	10.40	1.59	1.46
DRAFTING	171300	8461	25.01	74.22	7.58	10.42	6.46	1.31
TRONOCCP	171500	6091	11.36	66.84	11.49	12.84	7.90	.90
FOREMAN	171700	11003	39.32	78.19	7.99	9.31	3.35	1.16
WELDING	172306	8673	5.34	69.62	11.81	13.44	3.60	1.53
COSMETOL	172602	5842	85.64	70.97	8.95	15.30	3.49	1.28
LAWENFOR	172802	13015	25.19	79.47	8.64	7.84	3.01	1.03
OTHTRADE	179900	8982	26.86	75.42	5.70	13.37	4.04	1.47
ALL POSTSECONDARY PROGRAMS		540699	47.95	76.82	7.78	9.73	4.62	1.04

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* Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

Table VII-9A

COLORADO
Participation by Race and Sex in Largest Programs* in the State
Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
GENMERCH	40800	909	49.21	86.91	4.29	6.09	2.26	.45
REALEST	41700	853	38.95	90.33	4.42	4.42	.83	0
NURSING	70301	1039	91.94	86.49	7.11	3.91	1.18	1.30
OTHRNURS	70399	1083	97.50	87.50	5.00	6.25	1.25	0
MEDEMERG	70707	1318	40.00	94.12	0	4.71	0	1.18
CHLDCARE	90201	457	95.83	80.68	8.33	10.23	0	.76
ACCOUNT	140100	2518	71.00	86.43	4.35	5.83	2.05	1.34
DATAPROS	140299	784	51.09	80.71	8.97	7161	2.45	.27
GENOFFIS	140300	1011	80.00	74.00	3.00	21.50	.50	1.00
SEC.STEN	140700	1900	97.53	83.60	4.94	8.50	1.28	1.68
SUP.ADMN	140800	3697	46.63	85.13	6.34	6.54	1.06	.92
TRONTECH	160108	1915	12.41	84.60	4.26	7.85	2.32	.97
FIRETECH	160602	695	1.99	91.54	2.74	4.23	.25	1.24
COPTECH	160605	1200	24.11	89.62	3.94	5.01	.60	.84
OCCSAFTY	169900	1700	25.30	78.79	7.88	10.15	1.97	1.21
TRAD.IND	170000	2186	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
BODYREP	170301	651	.83	70.25	4.13	22.73	1.65	1.24
AUTOMECH	170302	1125	1.54	74.12	9.87	12.50	2.19	1.32
AUTOSPEC	170303	493	3.24	68.08	7.73	22.44	1.00	.75
CARPNTRY	171001	507	3.05	79.70	3.05	16.24	1.02	0
INDMAINT	171099	641	4.59	87.16	2.75	7.34	1.83	.92
MACHSHOP	172302	515	2.74	83.59	3.95	7.60	3.04	1.82
WELDING	172306	1298	2.33	76.69	4.24	15.89	1.48	1.69
ALL POSTSECONDARY PROGRAMS		19225	43.21	83.63	5.73	8.07	1.45	1.13

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* Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

Table VII-9B

FLORIDA
Participation by Race and Sex in Largest Programs* in the State
Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
ORNIHORT	10500	759	37.02	91.04	4.22	3.95	.40	.40
APPAREL	40200	732	94.13	65.98	23.09	9.29	1.09	.55
FIN CRED	40400	3019	79.73	88.70	6.29	4.41	.40	.20
GENMERCH	40800	801	50.44	83.77	13.48	2.12	.50	.12
HOTELSVC	41100	913	33.30	77.66	11.61	9.09	1.53	.11
REALEST	41700	1682	40.90	89.48	5.71	3.69	.59	.54
AA-NURS	70301	5713	91.83	86.24	9.99	2.82	.65	.30
PRACNURS	70302	1013	94.87	73.35	22.41	2.67	.49	1.09
MH-ASST.	70801	800	79.25	73.50	25.12	1.13	0	.25
CHLDCARE	90201	963	96.57	47.25	50.67	1.66	.21	.21
ACCNTNTS	140101	3634	64.25	68.82	15.69	14.17	.99	.33
COMPOPER	140201	1971	59.92	71.74	22.98	2.94	1.83	.51
COMPPROG	140203	1868	51.45	67.61	15.63	15.20	1.39	.16
GENOFFCL	140303	1149	91.21	49.78	42.12	6.70	.61	.78
SECY OCC	140700	2762	98.62	49.49	28.06	21.54	.69	.22
EXECSECY	140701	1810	98.29	76.57	20.00	2.10	.83	.50

Table continued on next page.

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*Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

Table VII-9B

FLORIDA

Participation by Race and Sex in Largest Programs* in the State

Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
SECRETAR	140702	1300	98.62	81.69	15.15	2.23	.69	.23
ADMINASS	140801	4996	47.76	79.86	14.27	4.54	.90	.42
OFFMANAG	140805	1257	47.89	78.20	15.51	5.73	.40	.16
ARCHTECH	160103	839	15.49	79.86	8.34	10.01	1.31	.48
CIVLTECH	160106	767	9.78	77.44	8.34	12.39	1.69	.13
TRONTECH	160108	3725	7.87	72.59	11.09	13.23	2.74	.35
SCIE. DP	160117	946	54.02	87.84	7.72	2.54	1.59	.32
OTHENGTH	160199	1710	25.56	82.16	11.58	4.62	1.52	.12
FIRETECH	160602	1354	1.99	88.55	7.39	3.25	.37	.44
COPTECH	160605	744	48.79	66.40	31.85	1.08	.27	.40
FLUIDPOW	160699	2432	76.77	71.75	20.76	6.87	.25	.37
AIRCONDI	170100	1552	3.35	80.41	11.66	6.64	.97	.32
AUTOMECH	170302	1135	5.11	70.40	25.11	1.85	1.85	.79
INDELTRN	171502	770	7.40	81.69	14.55	2.86	.52	.39
WELDING	172306	961	5.93	74.82	23.93	.62	.42	.21
COSMETOL	172603	735	88.44	84.76	13.20	1.36	.27	.41
LAWENFOR	172802	3793	30.06	84.29	10.91	4.03	.53	.24
ALL POSTSECONDARY PROGRAMS		77746	53.26	75.36	16.08	7.26	.93	.36

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*Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

Table VII-9C

ILLINOIS
Participation by Race and Sex in Largest Programs* in the State
Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% FEMALE	% WHITE	% BLACK	% HISPANIC	% ASIAN-AMERICAN	% NATIVE-AMERICAN
ORNIHORT	10500	1221	57.41	92.71	3.69	1.80	1.15	.66
GENMERCH	40800	2300	52.70	69.17	26.04	3.04	1.65	.09
REALEST	41700	3509	48.45	92.76	4.39	1.68	.80	.37
SMBUSMGT	49901	2238	43.70	79.98	16.40	2.32	.67	.63
NURSING	70301	9467	90.30	76.87	18.76	2.62	1.39	.36
PRACNURS	70302	2803	91.90	89.33	7.78	1.68	.78	.43
RADITECH	70501	1111	68.05	62.20	33.12	2.70	1.53	.45
CHLDCARE	90201	4507	91.24	62.01	35.17	1.73	.69	.40
BOOKACCT	140102	10861	60.16	67.65	26.23	3.77	1.89	.45
BUS. DP	140200	6078	51.66	74.88	18.38	3.85	2.45	.44
COMPPROG	140203	3230	52.23	90.09	5.67	2.20	1.24	.80
EDUCASST	140601	1438	80.18	73.44	23.50	1.60	1.11	.35
EXECSECY	140701	1104	95.92	89.04	8.42	.72	.36	1.45
SECRETAR	140702	7596	93.76	79.38	16.28	3.00	1.03	.30
ADMINASS	140801	4362	47.98	83.70	14.10	1.56	.50	.14
ARCHTECH	160103	1135	19.30	70.31	26.96	1.85	.62	.26
AUTOTECH	160104	1335	15.88	92.13	4.34	2.32	.97	.22
TRONTECH	160108	4079	12.82	84.75	11.08	2.57	1.25	.34
MECHTECH	160113	1266	16.03	86.33	4.90	4.90	2.92	.95
FIRETECH	160602	1010	11.49	91.29	5.94	.99	.69	1.09
COPTECH	160605	1205	25.15	90.79	6.39	2.07	.33	.41
AIRCONDI	170100	1352	18.49	87.65	9.76	1.11	1.11	.37
AUTOMECH	170302	2303	4.99	54.62	41.82	2.30	.78	.48
DRAFTING	171300	2052	19.88	70.61	19.93	7.26	1.61	.58
FOREMAN	171700	1210	19.42	80.74	6.20	1.65	1.24	.17
MACHSHOP	172302	1122	18.00	84.40	9.36	4.72	.71	.80
WELDING	172306	3174	8.95	80.53	15.03	2.65	1.10	.69
COSMETOL	172602	1158	95.16	92.92	5.87	.95	.17	.09
LAWENFOR	172802	4981	30.54	84.88	11.36	2.77	.70	.28
LARGEST POSTSECONDARY PROGRAMS		119579	52.66	79.51	16.21	2.67	1.20	.41

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*Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

absolute numbers of Asian Americans and Native Americans are so small that reliable comparisons are difficult; nevertheless, there are few striking instances of over or underrepresentation.

Tables VII-9 through VII-9C display similar information for the postsecondary level. As at the secondary level, overrepresentation of women is widespread in occupational consumer and homemaking and office programs. Additionally, one finds women overrepresented in most health programs (nursing) and underrepresented in most technical programs that are offered mainly at the postsecondary level. There are also large disparities in the participation rates of black students, although the pattern varies somewhat among states. In most states, blacks are overrepresented in occupational consumer and homemaking, office, and some distributive education programs. In contrast to secondary programs where they are greatly underrepresented in trade and industrial programs, participation by blacks in postsecondary programs is closer to proportional. The most severe underrepresentation for blacks occurs in ornamental horticulture and technical programs, including those in the health area.

For Hispanics, the pattern varies by state. Thus, in Illinois, Hispanic students are proportionately represented in most programs. However, in Florida, where Hispanics constitute 7.2 percent of all vocational enrollment, there are high concentrations of Hispanic students in apparel (9.3%), hotel services (9.1%), accounting (14.2%), computer programming (15.2%), secretarial occupations (21.5%), and several technical programs (averaging about 12%). They are underrepresented in most health and trade and industrial programs.

We should note that several factors may account for disproportionate representation of racial and ethnic minorities. First, the full array of programs is not offered everywhere throughout the state, and to some extent the disparities have geographical explanations. Thus, for example, most agricultural programs are offered in rural areas, and to the extent relatively small numbers of minority students live in such areas, they will appear to be underrepresented in statewide data. Similarly, programs more likely to be offered in large cities will display overrepresentation of minorities when examined on a statewide basis. Second, at the postsecondary level, many programs require prerequisites in math or science that bar large numbers of minority students with inadequate basic skills. Insofar as the prerequisites constitute reasonable entry level requirements, underrepresentation is not a deficiency of the vocational progam but rather a failure of the general education system to impart basic skills. Third, depending on the quality of program and the likelihood that it leads to well-paying employment, overrepresentation may be little cause for concern. For example, the relatively high concentration of Hispanic students in some of Florida's technical programs may be of no consequence. We shall have more to say on this issue in the following section examining the relationship of program offerings to job opportunities and expected earnings.

These qualifications aside, it is apparent that substantial racial and sex bias persists in vocational education. This in itself is not a startling conclusion. However, for purposes of federal policy, what must be clearly understood is that patterns of bias emerge only at the program level, rather than for vocational education as a whole. Moreover, the presumption that racial bias is largely a big-city problem is not consistently borne out by the data. Consequently, if federal policy is to address problems of racial and sex bias in vocational education, it will have to continue to monitor program enrollments by race and sex. In the past, this has been costly and burdensome, and there are steps that could be taken to ease local resistance. Reporting at the level of four rather than six-digit program codes would suffice. Moreover, it will be necessary to continue to collect data at the LEA level; the geographic dimension of disparities in program participation is too strong to ignore, and it confounds interpretation of aggregate state data. Finally, however the data are collected, they must permit analysis over time. It is not the mere existence of race and sex bias but rather analysis of changes in magnitude that might allow assessing the effectiveness of federal policy aimed at alleviating the problem. Unfortunately, our data do not permit us to say whether participation rates of minorities and women have been changing over time.

C. Participation by the Handicapped, the Disadvantaged, and Students with Limited English Proficiency. Since passing the initial Vocational Education Act in 1963, Congress has several times taken steps to direct money more effectively toward programs for special populations. The 1976 Amendments continued the 10 percent setaside for handicapped students, increased the disadvantaged setaside to 20 percent from 15 percent, and reserved a portion of the disadvantaged setaside for students with limited English proficiency. Additionally, funds allocated under Subpart 4 were to be used exclusively to fund special programs for disadvantaged students.

In addition to the controversy that has surrounded regulations limiting the expenditure of setaside funds to the "excess costs" of programs for handicapped and disadvantaged students, some state and local education agencies have complained of difficulties in properly identifying students to be served. Identification of handicapped students has been closely coordinated with requirements set for in P.L. 94-142, The Education for All Handicapped Children Act, but this Act has been directed mainly at elementary and secondary levels. Consequently, secondary LEAs, well along in developing individualized education programs (IEPs) for handicapped students can readily identify those students enrolled in vocational education. Postsecondary institutions, however, less affected by P.L. 94-142, have more difficulty. Similarly, secondary LEAs are more accustomed to identifying academically and economically disadvantaged students to meet requirements of the Elementary and Secondary Education Act (ESEA). Postsecondary LEAs, however, have not been subject to such requirements. Moreover, one of the primary measures of economic disadvantage, income, is very imprecise when used to measure the degree of disadvantage among young adults. Thus, a "low-income" student from an upper-income background requires no special assistance other than financial aid and should not be included among the economically disadvantaged. However, with the kind of data typically available to postsecondary LEAs, it is difficult to separate truly disadvantaged students from those who are temporarily "poor" because of where they are in the life cycle. Consequently, postsecondary data on disadvantaged students enrolled in vocational education should be viewed skeptically.

Table VII-10 summarizes the participation rates of special students in vocational education for secondary and postsecondary programs combined. The percentage of handicapped students enrolled in vocational education ranges from .6 percent in Florida to 3.4 percent in Illinois. Disadvantaged students constitute from 26 percent in Oklahoma to 14.4 percent in Illinois. Students with limited English proficiency are less than .1 percent in Kansas, Oklahoma, Pennsylvania, South Dakota, and Texas, and .9 percent in California.

Whether these special populations are proportionately represented in vocational education is difficult to determine precisely, because good data on the number of special students in the total student population are not readily available for each state. Furthermore, VEDS instructed states to count only those students who actually received special services funded with VEA dollars. The actual number of handicapped and disadvantaged students enrolled in vocational education may be much larger. The National Center for Education Statistics reports that, in 1976, handicapped students constituted approximately seven percent of students aged 14 to 17 enrolled in school.* Using this measure as a standard, handicapped students are significantly underrepresented in vocational education.

Vocational education data on disadvantaged include both academically and economically disadvantaged students. Consequently, there

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*National Center for Education Statistics, The Condition of Education, 1978 Edition, Washington, D.C., USGPO, Table 1.16, p. 38.

Table VII-10

Percentage of Students Enrolled in Vocational Education Who Are Handicapped, Disadvantaged, or Have Limited English Proficiency Secondary and Postsecondary, FY 1979

	% HANDICAPPED	% DISADVANTAGED	% LEP
CALIFORNIA	1.3	8.3	.9
COLORADO	1.4	4.0	.1
FLORIDA	.6	2.6	.1
ILLINOIS	3.4	14.4	.3
KANSAS	1.9	3.5	*
OKLAHOMA	1.5	2.6	*
PENNSYLVANIA	2.0	3.2	*
SOUTH DAKOTA	.8	5.7	0
TEXAS	.7	3.2	*
UTAH	1.9	4.5	.7

Source: Vocational Education Data System

*Less than .1 percent.

is no readily available single standard that can be used for precise comparisons. However, a crude comparison can be made with the percentage of children, aged 5-17, below poverty. Table VII-11 compares the percentage of disadvantaged students enrolled in vocational education to the percentage of children in poverty in 1975. As with previous ratios calculated for race and sex, a ratio less than one indicates underrepresentation. Considering that figures for vocational education include academically disadvantaged as well as economically disadvantaged students, it is apparent that poor children are significantly underrepresented in vocational education in all states except Illinois.

Similarly, students with limited English proficiency are underrepresented in vocational education. In California, Colorado, Florida, New York, and Texas -- all states where more than 10 percent of children live in households where some language other than English is spoken -- less than two percent of the students enrolled in vocational education have limited English proficiency. Even allowing for the fact that not all children in non-English speaking families have difficulties with English, this figure is disproportionately low.

Turning to the participation of special populations in particular programs, it is evident from Tables VII-12A through VII-12C that these students are more likely to be enrolled in some programs than in others.* Thus, both handicapped and disadvantaged students are more highly concentrated in consumer and homemaking programs in all three states. Additionally, with the exception of auto mechanics, disadvantaged students tend to be underrepresented in most trade and industrial programs.

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*Data not available for California.

Table VII-11

Estimates of the Representation of Disadvantaged Students in Vocational Education

	(1) % Children Below Poverty Level	(2) % Disadvantaged Students in Voc. Ed.	Ratio of (2) to (1)
CALIFORNIA	13.8	8.3	.60
COLORADO	10.7	4.0	.37
FLORIDA	21.6	2.6	.12
ILLINOIS	15.1	14.4	.95
KANSAS	8.6	3.5	.41
OKLAHOMA	14.6	2.6	.18
PENNSYLVANIA	12.6	3.2	.25
SOUTH DAKOTA	13.1	5.7	.44
TEXAS	20.5	3.2	.16
UTAH	8.0	4.5	.74

Table VII-12A

COLORADO
Participation by Target Groups in Largest Programs* in State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% HANDI-CAPPED	% DISAD-VANTAGED	% LEP
DISTEDUC	40000	3952	1.32	6.00	1.85
HOMEMKG	90100	13280	1.16	9.13	.91
OCCPREP	90299	1263	2.53	15.76	1.35
ACCOUNT	140100	2700	.51	4.62	3.54
GENOFFIS	140300	9875	.70	6.85	.71
SEC.STEN	140700	4917	.61	5.64	2.14
AUTOMECH	170302	2650	1.67	9.59	1.33
WELDING	172306	1465	2.71	14.83	1.03
ALL 11th & 12th GRADE PROGRAMS		48317	1.47	8.32	1.20

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*Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-12B

FLORIDA
Participation by Target Groups in Largest Programs* in State
Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% HANDI-CAPPED	% DISAD-VANTAGED	% LEP
FOODSERV	40700	5163	1.16	15.21	N.A.
GENMERCH	40800	16271	.42	10.91	N.A.
PERSSERV	41500	4037	.85	14.53	N.A.
REALEST	41700	4094	6.00	8.00	N.A.
RECSERV	41800	3885	1.08	11.30	N.A.
PRACNURS	70302	9230	0	15.09	N.A.
COMPHOME	90101	6717	15.44	4.11	N.A.
CHILDDEV	90102	8207	.48	3.33	N.A.
CLOTHING	90103	25466	.94	4.63	N.A.
CONSUMED	90104	4857	.42	1.89	N.A.
FAMILY	90106	10684	.48	3.02	N.A.
FOODNUT	90107	23440	.57	3.02	N.A.
HOUSING	90109	4335	.54	3.01	N.A.
CHLDCARE	90201	6397	1.84	7.12	N.A.
CLOTHING	90202	7691	1.27	18.19	N.A.
FOOD,MPS	90203	8440	4.31	11.21	N.A.
HOMEFURN	90204	3581	1.71	7.46	N.A.
ACCCOMP	140100	4589	.66	2.90	N.A.
BOOKACCT	140102	25987	.13	2.43	N.A.
BUS. DP	140200	7044	.22	.76	N.A.
GEN OFF	140300	23626	2.04	4.07	N.A.
GENOFFCL	140303	5519	1.80	9.08	N.A
INFOCOMM	140400	7550	.86	3.95	N.A.
PERSONNL	140600	12969	.37	2.60	N.A.
SECY OCC	140700	20598	.17	2.42	N.A.
SUFMGMT	140800	8279	.06	1.04	N.A.
TYPIST	140902	52536	.48	2.76	N.A.
AIRCONDI	170100	5711	.26	3.45	N.A.
BODYREP	170301	3841	.65	5.38	N.A.
AUTOMECH	170302	12893	.82	4.23	N.A.
CARPNTRY	171001	4916	1.53	8.68	N.A.
CONSTREL	171002	3614	3.16	6.62	N.A.
DRAFTING	171300	4193	.69	1.48	N.A.
WELDING	172306	6222	.11	2.71	N.A.
COSMETOL	172602	4578	1.27	1.52	N.A.
LAWENFOR	172802	8507	1.22	3.90	N.A.
ALL 11th & 12th GRADE PROGRAMS		292691	1.33	5.19	N.A.

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* Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-12C

ILLINOIS

Participation by Target Groups in Largest Programs* in State

Secondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% HANDI-CAPPED	% DISAD-VANTAGED	% LEP
AGRIPROD	10100	3952	2.53	11.03	.08
AGRIMECH	10300	3141	3.06	13.66	0
GENMERCH	40800	12976	3.01	27.60	.29
CHLDCARE	90201	8566	4.45	17.94	.21
CLOTHING	90202	4704	5.06	23.30	.28
FOOD,MPS	90203	10574	5.94	19.56	.29
BOOKACCT	140102	23981	2.10	20.70	.30
COMPROG	140203	8727	2.23	27.54	.72
GENOFFCL	140303	9780	2.28	31.22	.56
SECRETAR	140702	29888	1.46	10.45	.07
CLKTYPST	140901	7956	1.40	13.75	.30
AUTOMECH	170302	11216	3.61	16.05	.26
CONSTTRD	171000	11530	2.96	12.09	.16
DRAFTING	171300	7643	2.41	11.33	.22
GRAPHART	171900	3946	3.85	15.64	.23
MACHSHOP	172302	3597	3.67	14.04	.33
WELDING	172306	3107	3.09	15.61	.19
ALL 11th & 12th GRADE PROGRAMS		219587	4.17	17.25	.25

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*Largest programs are those which account for 75 percent of enrollment in the state at the secondary level.

Table VII-13A

COLORADO
Participation of Target Groups in Largest Programs* in State
Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% HANDI-CAPPED	% DISAD-VANTAGED	% LEP
GENMERCH	40800	909	.23	11.96	.68
REALEST	41700	853	0	10.50	.55
NURSING	70301	1039	.59	16.82	1.07
OTHRNURS	70399	1083	0	46.25	0
MEDEMERG	70707	1318	1.18	37.65	2.35
CHLDCARE	90201	457	.38	10.98	0
ACCOUNT	140100	2518	.38	19.59	.64
DATAPROS	140299	784	.27	32.34	2.17
GENOFFIS	140300	1011	16.50	34.50	.50
SEC.STEN	140700	1900	.10	18.38	.40
SUP.ADMN	140800	3697	.21	18.60	.75
TRONTECH	160108	1915	.75	21.30	.52
FIRETECH	160602	695	0	2.49	0
COPTECH	160605	1200	.48	26.49	.72
OCCSAFTY	169900	1700	.30	10.61	.76
TRAD.IND	170000	2186	NA	NA	NA
BODYREP	170301	651	0	7.02	.41
AUTOMECH	170302	1125	1.10	13.60	.65
AUTOSPEC	170303	493	.25	6.73	.25
CARPNTRY	171001	507	1.52	9.14	2.03
INDMAINT	171099	641	.92	14.68	.92
MACHSHOP	172302	515	1.52	18.24	.30
WELDING	172306	1298	.42	5.72	.42
ALL POSTSECONDARY PROGRAMS		19225	.64	13.06	.26

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*Largest programs are those which account for 75% of enrollment in the state at the secondary level.

Table VII-13B

ILLINOIS
Participation by Target Groups in Largest Programs* in State Postsecondary, FY 1979

PROGRAM NAME	OE CODE	ENROLL-MENT	% HANDI-CAPPED	% DISAD-VANTAGED	% LEP
ORNIHORT	10500	1221	1.06	3.69	.33
GENMERCH	40800	2300	.70	2.[illegible]1	0
REALEST	41700	3509	.51	1.05	0
SMBUSMGT	49901	2238	1.07	5.05	.36
NURSING	70301	9467	.80	13.08	.43
PRACNURS	70302	2803	4.17	14.27	.39
RADITECH	70501	1111	.90	3.78	.27
CHLDCARE	90201	4507	1.11	18.17	.24
BOOKACCT	140102	10861	.87	17.11	1.52
BUS. DP	140200	6078	1.00	7.26	.79
COMPPROG	140203	3230	.77	3.90	.03
EDUCASST	140601	1438	2.02	16.76	0
EXECSECY	140701	1104	2.36	16.67	0
SECRETAR	140702	7596	1.38	7.70	.41
ADMINASS	140801	4362	.60	4.91	0
ARCHTECH	160103	1135	1.67	16.83	.09
AUTOTECH	160104	1335	.67	1.95	.07
TRONTECH	160108	4079	.98	6.45	.22
MECHTECH	160113	1266	1.74	3.55	.47
FIRETECH	160602	1010	0	1.09	.30
COPTECH	160605	1205	.58	3.57	.17
AIRCONDI	170100	1352	.52	2.59	.59
AUTOMECH	170302	2303			
DRAFTING	171300	2052	.63	4.43	.39
FOREMAN	171700	1210	.17	.17	.08
MACHSHOP	172302	1122	.45	3.74	0
WELDING	172306	3174	.88	2.68	.06
COSMETOL	172602	1153	2.25	12.87	0
LAWENFOR	172802	4981	.52	5.28	.14
LARGEST POSTSECONDARY PROGRAMS		119579	1.00	8.35	.44

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* Largest programs are those which account for 75 percent of enrollment in the state at the postsecondary level.

II. Relationship Between Program Offerings and Occupational Opportunities and Expected Wages

To understand better the significance of differences in rates of participation of target populations in different vocational education programs, we undertook an analysis of the job opportunities and expected wage levels associated with various vocational education programs. This enabled us to examine the extent to which minorities, women, the handicapped, and disadvantaged were enrolled in programs preparing students for occupations in which there was a high likelihood of employment and of earning above average wages. We considered such programs to be higher in quality than those preparing students for occupations with relatively few employment opportunities or relatively low wages.

Applying the term "quality" to programs on the basis of indicators that measure labor market conditions rather than characteristics of the programs may be challenged. Certainly these are not sufficient indicators of program quality, for they ignore a number of other important program features such as experience of the instructor, whether the curriculum and equipment are up to date, whether supplies are adequate, and so forth. Nevertheless, if not sufficient indicators of quality, these measures of labor market conditions seem to us to be necessary indicators. It is difficult to defend continuing to operate programs that are not likely to lead to jobs related to the training. Continuing programs that supply low paying occupations in which there are numerous job opportunities may be more defensible, but most observers would not consider these high quality training opportunities.

A. Relating Vocational Education Programs to Occupations, Employment Opportunities, and Wage Levels. Deriving two separate measures of program quality, one based on employment opportunities and the other on expected hourly wages, is a complicated process of matching vocational education programs to specific occupations and then merging this match with data on labor market supply and demand and wage level information. For the first step, matching programs to occupations, we relied primarily on a "crosswalk" prepared by the National Occupational Information Coordinating Committee (NOICC).* This publication links the six-digit instructional program codes used by the U.S. Department of Education to occupational classification systems such as the Dictionary of Occupational Titles (DOT), the Standard Occupational Classification (SOC), Occupational and Employment Statistics (OES), and the Census Occupational System. For the majority of instructional programs, identifying the associated occupation is straightforward. However, this may be especially difficult in some instances; there may be no readily apparent specific occuapatio associated with the program, or there may be more than one occupation for which the program prepares students.

In using the NOICC crosswalk, as well as the Occupational Outlook Handbook prepared by the U.S. Department of Labor,** we sought to identify at least one suitable occupational title for each six-digit instructional program title. We excluded from consideration non-occupational consumer and homemaking programs, as well as broad based introductory courses in each of the major two-digt program areas (agriculture, distributive education, health, etc.).

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*National Occupational Information Coordinating Committee, Vocational Preparation and Occupations, Volume 1, 1979.

**U.S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook, 1980-81 Edition, Washington, D.C.: USGPO, 1980.

With this inventory of instructional programs and occupational titles, we derived two indices of quality. The first, expected hourly wages, was derived using data supplied by Occupational Outlook Handbook, 1980-81. Selecting figures on average hourly earnings (converting weekly or annual earnings as necessary), we assigned an average hourly wage to each program. In cases where a program prepared students for more than one occupational title, we averaged hourly wages for each occupation and assigned this result to the program. Note that this figure is the average for all persons employed in that occupation, not the entry level wage. Consequently, it is the wage that one could expect to earn if he or she remained employed in the occupation for several years.

The second quality measure, employment opportunities, is more complex, derived from combining four different but related measures:

1. the change in average hourly earnings for a particular occupational title between 1970 and 1978; used as a measure of change in demand and supply
2. estimates of future employment opportunities supplied in the Occupational Outlook Handbook
3. the projected average of annual openings from 1976 to 1985, available from the Bureau of Labor Statistics (Occupational Projections and Training Data, Bulletin 2020, April 1979)
4. estimates of employment opportunities relative to present employment presented in state plans for vocational education or accountability reports.

The first three measures all relied on national data, while the fourth was specific to each state.

To combine these four measures into a single index, programs were first ranked on each measure from lowest to highest. Programs were then divided into quartiles based on enrollments, i.e., the lowest programs accounting for 25 percent of total enrollments were all assigned to the bottom quartile and given a score of one. The next set of low scoring programs accounting for another 25 percent of enrollments were assigned the second lowest quartile and given a score of two, and so on. Thus, every program had a score ranging from one to four on each measure. These four scores were summed, and programs were ranked on this total score. As was done with each of the component measures, programs were divided into quartiles based on enrollment and assigned a score from one to four (low to high) on an employment opportunity index.

B. Participation by Race and Sex in Programs Ranked in Terms of Wage Levels and Employment Opportunities. Table VII-14 displays for four states the sex and race composition of secondary programs ranked in terms of expected wages.* The most striking feature of the table is the very high concentration of boys in programs with high wage opportunities and the correspondingly low concentration of girls. In all four states, over 35 percent of all boys enrolled in vocational education are enrolled in programs with the highest expected wages. In none of these states does the proportion of girls in these high wage programs exceed 11 percent.

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*Constraints on time and resources permitted us to perform this analysis in only five states. Results for South Dakota will be added in the next draft.

Table VII-14

Analysis of Participation of Ethnic/Sex Groups in Vocational Programs Classified by Program Wage Indicator Secondary Level (11th & 12th Grade)

State	Enroll.	% Male	% Female	% White	% Black	% Hisp.	% Asian	% Native Am.
California								
1 Low	25.8	13.3	35.7	25.8	22.7	27.1	26.5	31.0
2 Low-Med.	27.2	16.8	35.4	27.9	25.1	24.3	35.9	28.3
3 High-Med.	26.1	27.1	25.2	27.5	22.4	24.0	22.7	25.0
4 High	21.0	42.8	3.7	18.9	29.8	24.6	14.9	15.8
TOTAL	277,743	122,830	154,913	179,715	30,521	54,647	11,339	1,521
Colorado								
1 Low	34.2	13.8	51.0	33.1	54.5	35.4	36.8	25.6
2 Low-Med.	19.7	16.2	22.7	19.5	20.8	20.9	18.4	19.9
3 High-Med.	20.3	19.7	20.8	21.4	8.7	16.7	28.8	18.5
4 High	25.8	50.4	5.4	26.0	15.9	27.0	16.0	35.9
TOTAL	31,240	14,126	17,114	25,358	1,167	4,222	212	281
Florida								
1 Low	26.1	14.6	33.4	23.1	37.2	24.8	22.7	27.2
2 Low-Med.	27.7	18.2	33.7	27.4	25.8	35.0	33.0	25.2
3 High-Med.	26.0	32.0	22.3	28.1	19.9	23.3	25.0	18.9
4 High	20.1	35.2	10.6	21.3	17.1	16.9	19.3	28.6
TOTAL	206,767	80,134	126,633	147,412	41,735	16,125	1,286	206
Illinois								
1 Low	24.9	10.3	39.3	23.9	29.6	23.7	23.5	29.7
2 Low-Med.	25.0	12.3	37.5	24.5	26.1	30.2	24.7	27.0
3 High-Med.	23.9	34.0	13.9	24.5	21.5	20.9	22.7	18.9
4 High	26.2	43.4	9.4	27.0	22.8	25.1	29.1	24.3
TOTAL	215,973	107,045	108,928	169,667	37,140	7,709	1,272	185

At the other end of the scale, from 33 percent of girls in Florida to over 50 percent of girls in Colorado are enrolled in programs with the lowest wage expectations. The pattern persists at the postsecondary level (Table VII-15), where as few as seven percent and not more than 13 percent of women enrolled in vocational education are in programs with the highest expected wage levels. Similarly, from 34 to 41 percent of postsecondary female students are enrolled in the lowest programs compared to a range of 11 to 22 percent for men.

Patterns of racial and ethnic bias are not as pronounced. In three of the four states, the proportion of non-Hispanic whites enrolled in the highest wage secondary programs exceeds the proporton of blacks. Also in these three states, from 30 percent to 54 percent of all black students are concentrated in the lowest wage programs, compared to a range of 23 to 33 percent for whites. Interestingly, in California, the percentage of black secondary students enrolled in the highest wage programs is 30 percent compared to 19 percent for whites. At the postsecondary level, black students in all four states are more heavily concentrated in the lowest wage programs, but, with the exception of Illinois, are not disproportionately represented in the highest wage programs.

In states where other minority groups constitute a significant portion of enrollments, there is no consistent pattern of disproportionate representation. In Florida, Hispanic secondary students are somewhat underrepresented in high wage programs, 17 percent compared to 21 percent for other white students, but they are either proportionately or overrepresented in the other three states. In

Table VII-15

Analysis of Participation of Ethnic/Sex Groups in Vocational Programs Classified by Program Wage Indicator Postsecondary Level

State	Enroll.	% Male	% Female	% White	% Black	% Hisp.	% Asian	% Native Am
California								
1 Low	31.1	22.3	41.3	30.9	34.9	30.5	29.1	30.5
2 Low-Med.	21.1	20.8	21.6	20.3	21.7	24.9	26.0	21.4
3 High-Med.	25.7	25.7	25.8	26.8	22.3	20.5	24.2	24.7
4 High	22.1	31.3	11.4	22.0	21.1	24.0	20.7	23.4
TOTAL	512,069	275,548	236,521	394,741	39,541	48,692	23,837	5,258
Colorado								
1 Low	23.4	15.0	34.3	23.2	27.6	23.2	24.2	27.4
2 Low-Med.	29.0	32.4	24.6	29.9	19.6	23.7	28.6	25.4
3 High-Med.	26.5	20.5	34.4	27.1	30.9	19.4	22.8	19.9
4 High	21.1	32.2	6.7	19.8	21.9	33.7	24.5	27.4
TOTAL	33,210	18,755	14,455	28,594	1,332	2,520	413	351
Florida								
1 Low	22.3	14.2	29.4	21.5	27.2	19.9	18.5	21.0
2 Low-Med.	23.6	26.7	20.8	22.7	23.7	31.5	35.4	23.5
3 High-Med.	29.7	22.0	36.5	31.6	23.6	24.6	22.1	29.4
4 High	24.4	37.1	13.3	24.3	25.5	24.0	24.0	26.1
TOTAL	76,631	35,933	40,698	57,847	12,317	5,486	709	272
Illinois								
1 Low	23.2	10.6	34.5	21.8	29.9	23.8	24.0	23.0
2 Low-Med.	28.2	35.3	21.8	28.3	27.0	31.1	31.8	30.7
3 High-Med.	24.6	16.9	31.5	25.2	22.5	21.0	23.0	22.0
4 High	24.0	37.2	12.3	24.7	20.7	24.1	21.3	24.3
TOTAL	117,070	55,241	61,829	93,165	18,908	3,108	1,407	482

California, the state with the largest Asian population, there is a larger proportion of Asian students, 62 percent, in the bottom two quartiles than there is for whites, 53 percent.

At the postsecondary level, the proportion of Hispanic students enrolled in the highest quartile equals or exceeds the proportion of other white students in all four states. In California, the higher concentration of Asian students in the two lower quartiles persists at the postsecondary level but is not as striking; 55 percent of Asian students are enrolled in these two quartiles compared to 51 percent of whites.

Turning to the second indicator of program quality, employment opportunities, a very different pattern emerges. Tables VII-16 and VII-17 display the distribution of students by race and sex when programs are ranked on this indicator. In three of the four states, the proportion of girls in programs with the highest likelihood of employment far exceeds the proportion of boys. In these states, the proportion of girls in these programs ranges from 43 to 46 percent while the range for boys is 11 to 18 percent. The pattern is repeated at the postsecondary level, where from 23 to 50 percent of women students are in programs with high employment opportunities, compared to a range of 5 to 15 percent for the men. The pattern for Colorado is an exception at both levels.

For the most part racial and ethnic minorities are distributed among quartiles in the same relative numbers as whites. One exception occurs in Illinois where black, Hispanic, and Asian students are underrepresented in the highest quartile and overrepresented in the middle two.

Table VII-16

Analysis of Participation of Ethnic/Sex Groups in Vocational Programs Classified by Employment Opportunities Indicator Secondary Level (11th & 12th Grade)

State	Enroll.	% Male	% Female	% White	% Black	% Hisp.	% Asian	% Native Am.
California								
1 Low	11.7	21.5	4.2	11.8	13.6	11.1	9.3	10.8
2 Low-Med.	37.5	45.2	31.6	37.2	35.8	40.1	34.1	39.3
3 High-Med.	18.7	15.4	21.2	18.8	19.9	17.4	20.3	17.9
4 High	32.1	17.9	43.0	32.3	30.6	31.5	36.4	32.1
TOTAL	269,610	116,580	153,029	175,625	28,653	52,760	11,081	1,490
Colorado								
1 Low	33.3	17.2	46.6	33.2	40.6	32.2	40.1	23.8
2 Low-Med.	30.6	53.1	11.9	31.5	17.8	28.0	27.4	35.9
3 High-Med.	19.3	13.1	24.4	18.8	23.3	21.1	17.4	20.6
4 High	16.8	16.6	17.0	16.4	18.3	18.7	15.1	19.6
TOTAL	31,238	14,124	17,114	25,357	1,166	4,222	212	281
Florida								
1 Low	35.7	47.6	28.2	35.2	29.4	33.7	34.0	34.5
2 Low-Med.	18.4	13.8	21.3	16.0	23.5	15.5	12.5	18.7
3 High-Med.	17.3	21.8	14.5	17.9	13.0	12.7	17.7	24.1
4 High	28.6	16.9	44.8	31.0	34.1	38.2	35.8	22.7
TOTAL	189,673	73,933	115,740	142,294	40,284	15,744	1,236	203
Illinois								
1 Low	30.5	53.2	8.9	31.7	25.7	27.4	32.6	27.1
2 Low-Med.	14.4	13.1	15.6	12.3	21.5	25.3	20.4	13.0
3 High-Med.	26.2	23.1	29.1	24.7	32.1	29.6	26.3	30.5
4 High	28.9	10.7	46.3	31.3	20.8	17.7	20.7	29.4
TOTAL	208,341	101,671	106,670	163,551	36,091	7,381	1,141	177

Table VII-17

Analysis of Participation of Ethnic/Sex Groups in Vocational Programs Classified by Employment Opportunities Indicator Postsecondary Level

State	Enroll.	% Male	% Female	% White	% Black	% Hisp.	% Asian	% Native Am.
California								
1 Low	19.2	24.9	12.6	19.1	17.6	19.0	21.9	19.4
2 Low-Med.	29.9	31.3	28.3	29.8	30.1	30.7	30.3	30.6
3 High-Med.	32.4	30.8	34.3	33.2	29.5	28.9	32.2	30.2
4 High	18.5	13.0	24.8	17.9	22.7	21.4	15.6	19.9
TOTAL	504,806	271,138	233,668	389,467	38,766	47,961	23,453	5,159
Colorado								
1 Low	28.4	31.5	24.5	28.8	26.3	24.6	32.9	23.7
2 Low-Med.	25.5	27.2	23.2	24.9	30.0	28.5	25.4	29.1
3 High-Med.	25.5	18.1	34.9	24.9	28.1	29.0	28.1	27.9
4 High	20.7	23.3	17.4	21.3	15.6	17.9	13.6	19.4
TOTAL	33,174	18,726	14,448	28,561	1,332	2,517	413	351
Florida								
1 Low	31.0	41.1	23.3	29.4	33.7	41.3	35.3	32.8
2 Low-Med.	19.9	28.7	12.5	19.8	21.8	17.3	24.1	18.5
3 High-Med.	34.3	26.2	41.1	36.8	27.1	25.1	29.1	34.3
4 High	14.9	5.0	23.1	14.1	17.4	16.3	11.5	14.3
TOTAL	74,662	34,346	40,316	56,268	12,044	5,397	688	265
Illinois								
1 Low	26.0	41.9	11.9	27.0	21.4	27.5	24.1	27.7
2 Low-Med.	24.0	20.1	27.6	21.8	33.6	27.7	31.5	25.8
3 High-Med.	16.7	23.2	10.8	17.5	13.3	14.6	14.1	14.3
4 High	33.3	14.9	49.8	33.8	31.7	30.2	30.3	32.1
TOTAL	115,105	54,412	60,693	91,423	18,744	3,072	1,390	476

C. Participation by Handicapped and Disadvantaged Students. Tables VII-18 and VII-19 display the distribution of handicapped and disadvantaged students among programs ranked by expected wage levels. In the three states for which data are available, there is a greater proportion of handicapped secondary students enrolled in high wage programs than the proportion of students generally. For example, in Florida, where 20 percent of all students are enrolled in high wage programs, 29 percent of all handicapped students are enrolled in these programs. However, in both Florida and Illinois, there is also a greater proportion of handicapped students enrolled in the lowest wage programs.

At the postsecondary level, in the two states for which data are available, there are relatively lower proportions of handicapped students enrolled in high wage programs. Thus, 17 percent of handicapped students in Colorado are enrolled in high wage postsecondary programs compared to 23 percent of the total enrollment. In Illinois, the figures are almost identical. Similarly, in both states, handicappped students are relatively more concentrated in the lowest wage programs than students generally.

At the secondary level, disadvantaged students are more heavily concentrated in the lowest wage programs in all three states. However, in both Florida and Illinois, they are proportionately represented in the highest wage programs. At the postsecondary level, disadvantaged students are overrepresented in the lowest wage programs and underrepresented in the highest.

In the two states for which data are available, the absolute number of LEP students is so small that comparisons should be viewed

Table VII-18

Analysis of Participation of Target Populations in Vocational Programs Classified by Program Wage Indicator Secondary Level (11th & 12th Grade)

State	% Handicapped	% Disadvantaged	% LEP	% Total
California				
1 Low	n.a.	n.a.	n.a.	25.8
2 Low-Medium	n.a.	n.a.	n.a.	27.2
3 High-Medium	n.a.	n.a.	n.a.	26.0
4 High	n.a.	n.a.	n.a.	21.0
Colorado				
1 Low	22.5	36.0	15.9	25.8
2 Low-Medium	14.4	16.9	29.6	27.0
3 High-Medium	24.8	26.4	31.5	18.4
4 High	38.4	20.7	23.0	28.8
TOTAL	597	1,196	631	
Florida				
1 Low	37.9	49.7	n.a.	26.1
2 Low-Medium	14.0	9.3	n.a.	27.7
3 High-Medium	19.3	21.3	n.a.	26.1
4 High	28.8	19.8	n.a.	20.1
TOTAL	11,180	2,498	n.a.	
Illinois				
1 Low	33.9	28.8	30.7	24.9
2 Low-Medium	13.5	21.5	17.0	25.0
3 High-Medium	24.2	23.7	20.6	23.9
4 High	28.5	26.0	31.8	26.4
TOTAL	1,176	9,869	516	

n.a. = not available

Table VII-19

Analysis of Participation of Target Populations in Vocational Programs Classified by Program Wage Indicator Postsecondary Level

State	% Handicapped	% Disadvantaged	% LEP	% Total
California				
1 Low	n.a.	n.a.	n.a.	31.1
2 Low-Medium	n.a.	n.a.	n.a.	21.1
3 High-Medium	n.a.	n.a.	n.a.	25.7
4 High	n.a.	n.a.	n.a.	22.1
TOTAL				
Colorado				
1 Low	48.6	27.4	26.0	21.1
2 Low-Medium	22.9	32.4	20.7	26.5
3 High-Medium	11.0	22.4	36.1	29.0
4 High	17.4	17.8	17.2	23.4
TOTAL	327	3,580	285	
Florida				
1 Low	n.a.	n.a.	n.a.	
2 Low-Medium	n.a.	n.a.	n.a.	
3 High-Medium	n.a.	n.a.	n.a.	
4 High	n.a.	n.a.	n.a.	
TOTAL	n.a.	n.a.	n.a.	
Illinois				
1 Low	28.7	28.2	22.5	23.2
2 Low-Medium	32.9	35.5	46.1	28.2
3 High-Medium	21.0	20.8	12.8	24.6
4 High	17.4	15.5	18.6	24.0
TOTAL	1,176	9,869	516	

n.a. = not available

cautiously. In both states, LEP students appear to be underrepresented in the highest wage programs at the postsecondary level, but the pattern is mixed at the secondary level.

Tables VII-20 and VII-21 display corresponding distributions with respect to employment opportunities. In Colorado, handicapped students are relatively more concentrated in secondary programs with the highest opportunities, but in the other two states they are underrepresented in these programs. At the postsecondary level, they are overrepresented in the highest programs in both Colorado and Illinois.

There are relatively fewer disadvantaged students in the highest quartile of secondary programs in Colorado and Illinois, but a protionate number in Florida. At the postsecondary level, they are slightly underrepresented in Colorado and somewhat overrepresented in Illinois. Additionally, in Illinois, LEP students are underrepresented in the highest programs at both secondary and postsecondary levels.

D. Program Quality by Stratum. To determine whether where a student lives affects his or her access to programs with high wage expectations and high employment opportunities, we analyzed the distribution of students among the four program classifications in each of the five categories of LEA size. Tables VII-22 and VII-23 report the results for the wage level indicator and Tables VII-24 and VII-25 report the results for the employment opportunities indicator.

Although there is much variation among strata on the wage level indicator, no consistent pattern across states emerges. Secondary

Table VII-20

Analysis of Participation of Target Populations in Vocational Programs
Classified by Employment Opportunities Indicator
Secondary Level (11th & 12th Grade)

State	% Handicapped	% Disadvantaged	% LEP	% Total
California				
1 Low	n.a.	n.a.	n.a.	11.7
2 Low-Medium	n.a.	n.a.	n.a.	37.4
3 High-Medium	n.a.	n.a.	n.a.	18.7
4 High	n.a.	n.a.	n.a.	32.1
TOTAL				
Colorado				
1 Low	18.3	32.5	22.2	31.0
2 Low-Medium	38.9	27.2	30.2	31.6
3 High-Medium	21.9	28.6	30.3	22.5
4 High	20.9	11.8	17.3	14.9
TOTAL	597	1,992	630	
Florida				
1 Low	28.3	21.5	n.a.	35.7
2 Low-Medium	24.4	31.3	n.a.	18.4
3 High-Medium	22.8	19.0	n.a.	17.3
4 High	24.5	28.1	n.a.	28.6
TOTAL	10,803	2,286	n.a.	
Illinois				
1 Low	31.7	28.5	34.4	30.5
2 Low-Medium	10.9	16.6	16.5	14.3
3 High-Medium	31.5	33.0	31.0	26.2
4 High	25.9	22.0	18.2	29.0
TOTAL	6,703	36,438	529	

n.a. = not available

Table VII-21

Analysis of Participation of Target Populations in Vocational Programs Classified by Employment Opportunities Indicator Postsecondary Level

State	% Handicapped	% Disadvantaged	% LEP	% Total
California				
1 Low	n.a.	n.a.	n.a.	19.2
2 Low-Medium	n.a.	n.a.	n.a.	29.9
3 High-Medium	n.a.	n.a.	n.a.	32.4
4 High	n.a.	n.a.	n.a.	18.5
TOTAL				
Colorado				
1 Low	14.7	24.8	31.9	20.7
2 Low-Medium	19.9	20.5	16.5	25.4
3 High-Medium	34.9	28.6	25.3	25.5
4 High	30.6	26.1	26.3	28.4
TOTAL	327	3,580	285	
Florida				
1 Low	n.a.	n.a.	n.a.	
2 Low-Medium	n.a.	n.a.	n.a.	
3 High-Medium	n.a.	n.a.	n.a.	
4 High	n.a.	n.a.	n.a.	
TOTAL	n.a.	n.a.	n.a.	
Illinois				
1 Low	20.3	20.4	19.8	26.0
2 Low-Medium	23.6	34.3	51.9	24.0
3 High-Medium	11.5	8.1	2.9	16.7
4 High	44.7	37.1	25.5	33.3
TOTAL	11,444	9,719	491	

n.a. = not available

Table VII-22

Participation by Strata in Vocational Education Programs Classified by Wage Level Indicator*
Secondary
(In Percentages)

	Rural	Small Cities	Large Cities	Suburban Ring	Largest City	Total
CALIFORNIA						
1	28.58	28.57	30.15	26.23	12.78	25.79
2	22.25	28.83	34.65	29.09	14.70	27.19
3	33.51	27.64	21.31	25.84	25.08	26.02
4	15.66	14.96	13.89	18.83	47.43	21.01
Total Number	16,083	117,005	54,834	41,578	48,243	277,743
COLORADO						
1	31.7	20.3	33.4	25.5	21.5	25.8
2	28.2	34.5	22.1	16.6	38.5	27.0
3	10.1	15.9	25.9	22.7	15.5	18.4
4	29.9	29.3	18.6	35.2	24.5	28.8
Total Number	6,550	6,484	5,282	13,104	9,315	40,735
FLORIDA						
1	23.81	25.93	25.89	---	28.10	26.10
2	23.98	27.01	26.64	---	33.50	27.72
3	31.61	27.49	24.88	---	22.35	26.05
4	20.60	19.57	22.59	---	16.05	20.13
Total Number	17,541	81,058	73,281	---	34,887	206,767
ILLINOIS						
1	21.92	25.60	19.91	29.18	21.00	24.89
2	30.05	23.81	23.08	19.58	30.35	24.99
3	25.14	24.02	25.46	24.62	21.53	23.87
4	22.90	26.58	31.56	26.61	27.12	26.24
Total Number	36,474	56,056	6,430	68,037	48,976	215,973
SOUTH DAKOTA						
1	0.17	5.16	---	0	7.69	18.31
2	80.27	35.16	---	100.00	6.02	37.99
3	12.94	40.32	---	0	55.18	32.74
4	6.63	19.35	---	0	31.10	10.96
Total Number	603	310	---	64	299	1,961

*1=Low, 2=Low-Medium, 3=High-Medium, 4=High

Table VII-23

Participation by Strata in Vocational Education Programs
Classified by Wage Level Indicator*
Postsecondary
(In Percentages)

	Rural	Small Cities	Large Cities	Suburban Ring	Largest City	Total
CALIFORNIA						
1	32.77	33.61	26.23	28.21	38.40	31.06
2	24.64	19.37	21.88	22.78	26.37	21.13
3	23.27	27.13	25.11	25.28	20.21	25.73
4	19.31	19.90	26.77	23.73	15.02	22.08
Total Number	14,766	250,705	160,303	51,285	35,010	512,069
COLORADO						
1	20.6	19.8	27.4	18.9	20.4	21.1
2	27.3	16.5	20.1	31.4	38.4	26.5
3	43.2	40.2	24.5	24.7	15.6	29.0
4	8.7	23.5	27.9	25.0	25.6	23.4
Total Number	3,955	6,168	6,439	13,810	2,835	33,210
FLORIDA						
1	21.31	21.35	26.45	---	14.95	22.30
2	19.72	22.92	20.33	---	34.29	23.58
3	11.89	29.48	31.21	---	28.85	29.68
4	47.08	26.25	22.01	---	21.92	24.44
Total Number	1,506	35,351	28,446	---	11,328	76,631
ILLINOIS						
1	19.66	19.54	25.75	23.52	29.32	23.20
2	34.66	29.18	39.94	22.70	33.05	28.20
3	20.12	20.95	23.27	28.01	25.20	24.59
4	25.56	30.33	11.04	25.76	12.42	24.01
Total Number	12,291	31,666	3,778	47,518	21,817	117,070
NEW YORK						
1						
2						
3						
4						
Total Number						
SOUTH DAKOTA						
1						
2						
3						
4						
Total Number						
TEXAS						
1						
2						
3						
4						
Total Number						

*1=Low, 2=Low-Medium, 3=High-Medium, 4=High

Table VII-24
Participation by Strata in Vocational Education Programs Classified by Employment Opportunities Indicator*
Secondary
(In Percentages)

	Rural	Small Cities	Large Cities	Suburban Ring	Largest City	Total
CALIFORNIA						
1	15.04	10.61	5.17	10.39	22.52	11.71
2	40.06	35.78	39.06	37.19	39.28	37.47
3	12.75	16.78	19.77	18.84	24.40	18.70
4	32.15	36.83	36.00	33.58	13.80	32.12
Total Number	16,039	115,177	53,788	40,421	44,184	269,609
COLORADO						
1	30.8	33.3	23.5	20.0	27.3	31.0
2	45.3	26.2	40.8	17.5	26.7	31.6
3	11.6	26.2	21.1	26.8	35.6	22.5
4	12.2	13.9	14.6	35.6	10.3	14.9
Total Number	6,550	6,484	5,279	13,104	9,258	40,675
FLORIDA						
1	38.68	35.21	32.07	---	46.48	35.72
2	23.32	17.68	15.92	---	24.57	18.36
3	11.44	16.48	19.48	---	17.79	17.34
4	26.56	30.63	32.54	---	11.16	28.58
Total Number	16,374	77,968	71,777	---	23,554	189,673
ILLINOIS						
1	32.93	29.99	34.29	28.91	38.97	30.51
2	10.36	11.10	5.96	12.11	25.31	14.38
3	20.93	22.16	19.57	30.35	29.75	26.16
4	35.79	36.75	40.17	28.63	13.97	28.95
Total Number	35,634	54,004	6,069	65,060	47,574	208,341
SOUTH DAKOTA						
1	61.94	25.19	---	100.00	0	38.40
2	4.68	16.15	---		35.40	15.00
3	10.66	15.19	---		16.59	12.94
4	22.72	43.46	---		48.01	33.65
Total Number	854	520		67	452	1,893

*1=Low, 2=Low-Medium, 3=High-Medium, 4=High

Table VII-25

Participation by Strata in Vocational Education Programs Classified by Employment Opportunities Indicator*
Postsecondary
(In Percentages)

	Rural	Small Cities	Large Cities	Suburban Ring	Largest City	Total
CALIFORNIA						
1	22.08	18.86	17.58	22.45	23.10	19.19
2	30.16	28.52	35.01	27.80	18.83	29.90
3	27.03	34.83	29.88	32.13	29.58	32.43
4	20.73	17.78	17.52	17.62	28.49	18.48
Total Number	14,551	246,819	159,050	51,058	33,328	504,806
COLORADO						
1	35.9	26.1	21.1	15.9	10.4	20.7
2	21.9	20.2	26.1	27.6	29.3	25.4
3	19.5	15.1	22.0	32.6	29.3	25.5
4	22.8	38.6	30.8	23.8	31.0	28.4
Total Number	3,929	6,168	6,439	13,801	2,837	33,174
FLORIDA						
1	8.11	11.32	18.35	---	9.47	13.90
2	19.46	26.20	27.71	---	31.57	27.01
3	11.62	20.48	24.86	---	29.50	22.64
4	60.81	42.00	29.09	---	29.45	36.45
Total Number	740	14,006	11,084	---	2,027	27,857
ILLINOIS						
1	29.55	29.79	29.25	26.70	16.77	26.04
2	14.60	19.07	22.53	20.60	43.99	24.04
3	12.58	15.70	24.56	20.43	10.85	16.66
4	43.28	35.44	23.66	32.27	28.39	33.27
Total Number	12,182	30,825	3,778	46,565	21,755	115,105
NEW YORK						
1						
2						
3						
4						
Total Number						
SOUTH DAKOTA						
1						
2						
3						
4						
Total Number						
TEXAS						
1						
2						
3						
4						
Total Number						

*1=Low, 2=Low-Medium, 3=High-Medium, 4=High

students in rural areas are underrepresented in the highest wage programs in three of the five states and proportionately represented in the other two. Conversely, students in the largest city of each state were relatively overrepresented in highest wage programs in Los Angeles and Rapid City, South Dakota, underrepresented in Denver and Dade County, and proportionately represented in Chicago. At the postsecondary level, again there is much variation among strata but no consistent pattern across states.

With respect to employment opportunities, secondary students in the largest city of the state are relatively less concentrated in programs with the highest employment opportunities. Thus, 14 percent of Los Angeles' vocational students are enrolled in programs with the highest wage opportunities, compared to 32 percent for the state as a whole. In Denver, 10 percent of the students are in these programs compared to 15 percent for the entire state; in Dade County, 11 percent compared to 29 percent for all of Florida; and in Chicago, 14 percent compared to 29 percent for Illinois. Only in Rapid City, South Dakota is there a larger proportion of students, 48 percent, in the highest opportunity programs than for the state as a whole, 34 percent. Among the rural areas, students are proportionately enrolled, relative to the entire state, in the highest scoring programs in all but South Dakota, where they are underrepresented. At the postsecondary level, however, patterns are less clear. In some states, a particular stratum is underrepresented in the highest quartile, while in other states, it is not.

E. Conclusions. This section's analysis of participation in terms of program quality underscores the significance of disproportionate representation of women and minorities in particular vocational education programs (see Section I). Enrollment in a particular program has important implications for both the likelihood of securing employment related to training and the expected level of earnings. For women, there is a strong, consistent pattern across the states. On the one hand, they are overrepresented in programs leading to occupations with the greatest number of employment opportunities, but on the other hand, these occupations tend to be among the lowest paying. A similar but less pronounced pattern exists for black students, while the results for other racial and ethnic minorities do not deviate significantly from those for non-Hispanic whites.

Data on handicapped, disadvantaged, and LEP students are limited, and the absolute numbers are small. Consequently, it is unwise to generalize. Among the three states for which data are available, there is much variation. In all three, disadvantaged students are concentrated in programs with low expected wages.

Finally, the results are consistent with a frequently heard refrain from those familiar with vocational education, namely that there is great diversity among states. Diversity, however, need not preclude a federal role. Rather, it emphasizes that federal policy concerned with improving program quality and the access of special populations to high quality offerings must be sensitive to differences among states, among types of districts within states, and among different systems for delivering vocational education. We shall have more to say on this in our concluding chapter addressing policy implications and potential future directions.

CHAPTER VIII

Vocational Education in Large Cities

We noted in Chapter II the procedures we employed to study vocational education in certain large cities and the reasons why it seemed important to gain some first-hand knowledge of conditions in those cities. Interviews were held in Los Angeles, Denver, Houston, Chicago, Miami, New York City, and Boston.

Before launching into our more detailed observations, we make two general observations. First, specialized vocational high schools are popular institutions for students to attend. This popularity may stem more from flight from the violence-wracked inner city comprehensive high school than from intrinsic merit of programs, but it exists. In the inner city, specialized institutions cream students; they do not stand as a holding pool for academic rejects. As a corollary, we were able to observe that the old notion that "vokies" do not proceed directly to four year college is obsolete. In some specialized vocational high schools, approximately 50 percent of graduates do just that.

The second general observation is this: vocational education is strongly hierarchical in quality. We saw programs that would do credit to four year schools of engineering. We visited programs of design that are possibly unparalleled in the world. We have seen lavishly equipped facilities, dedicated faculty, and hard working students. Senior members of the project, all of whom have spent years as members of education institutions, found some vocational training activities to be more exciting, and to attract more loyalty and commitment of faculty and student body alike, than any academic education activity they are aware of. It is in such institutions that completion and placement rates run up to very high levels.

At the other end of the spectrum, we have visited institutions that have only recently dropped car washing from the curriculum and that show dry cleaning as the most popular program (only three percent of completers got jobs, we were told, but anyway the students could clean their own and their neighbors' clothes). We have seen welding shops in which the booths are falling over from rust. We have seen a masonry shop empty of tools of measurement and with the students work clothes tossed in a dirty heap in the bottom of a closet. We observed students asleep at their desks and classrooms almost row upon row empty for absence of instructors. Which is all to say that vocational education in our cities reflects the strengths of our technology and our culture and it reflects the physical and spiritual erosion of concentrated poverty as well.

I. Organization of the Vocational Education Delivery System in the Cities

City school districts have developed a number of different organizational arrangements for providing vocational education at the secondary level. Vocational programs are offered in comprehensive high schools, vocational high schools, and vocational centers, each having different attendance areas and admission policies. Table VIII-1 shows the organization of the vocational education system in each city visited.

Table VIII-1

Organization of Secondary Vocational Education in City School Districts

	Comprehensive High Schools With Vocational Education			Vocational High Schools	Shared-Time Vocational Centers	
	Regular Vocational Programs	Special Program open city-wide by application	Shared-time Programs		Secondary Only	Secondary and Adult
BOSTON	11	8	0	0	0	1
CHICAGO	58	0	0	10 regular 3 handicapped	0	0
DENVER	11	0	0	0	1	0
HOUSTON	19	4	0	4 3 alternative	0	0
LOS ANGELES	49	0	multiple locations	0	0	5
MIAMI	0*	0	9	0	0	4
NEW YORK CITY	68 10 alternative 4 specialized	0	0	22 voc-tech 6 career focus	0	0

* A few of the academic high schools offer one or two special vocational courses.

As we will discuss below, these arrangements for providing vocational education have a significant effect on the quality of vocational education and the accessibility of vocational programs. In this section, we will describe the different types of organizational arrangements in the cities.

A. Comprehensive High Schools. In six of the cities visited, at least a few vocational education courses are offered in most of the neighborhood high schools. These courses are available as electives to all of the students attending the school, whether or not they are pursuing a vocational program. In Boston, for example, all of the high schools offer programs in business, home service, and distributive education. Similarly, in New York City, all of the 79 academic and comprehensive high schools offer business programs, and many of the high schools offer courses in a wide range of other occupational areas.

While some vocational programs are available in most of the comprehensive high schools, the extent of the vocational education offerings varies considerably among the schools within each city. In Houston, for example, the number of occupational programs available in the regular comprehensive high schools ranges from four programs in one school to 15 in another.*

Dade County, on the other hand, offers vocational education programs in only 9 of the district's 24 high schools, except for special courses, such as marine mechanics, offered in a few of the other high schools. Students from other high schools in the district may enroll in vocational programs at the comprehensive high schools on a shared-time basis, with the district providing bus transportation.

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*Does not include Business Education and Industrial Arts (Non-vocational Funded Occupational Programs) which are available in each high school.

In addition to the vocational courses in the comprehensive high school program, each of the cities has developed a means of centralizing some vocational programs and offering them to students from more than one attendance area. The procedures for centralizing programs vary. Arrangements include specialized occupational programs in the comprehensive high school, vocational high schools, and vocational centers.

B. Specialized Vocational Programs in the Comprehensive High Schools. In three of the cities, specialized vocational programs are located in regular comprehensive high schools, but are open to students from more than one high school attendance area. Admission to these programs is by application, and in some cases, is highly competitive.

Boston's Cooperative Industrial Program has centers in eight of the district's high schools, each specializing in one or two occupational areas or trades. Students spend alternate weeks in a shop placement receiving on-the-job training, and at the high school in related vocational and academic courses. These programs are open to students city-wide, but require a special application. Although these programs are located in a comprehensive high school, they operate as a separate school-within-a-school.

Similarly, Houston's Magnet School Program offers career concentration programs in several of the regular high schools, These programs include related vocational and academic courses. They are open to students throughout the district and also to students from other school districts. Admission to these programs is by application.

New York City offers special career-related courses and "Educational Options" courses in the academic-comprehensive high schools. These are specialized, often advanced vocational courses that require application and screening for admission.

C. Vocational High Schools. Three of the cities visited rely on vocational high schools to provide a significant portion of the vocational education program. New York City has a long tradition of centralizing specialized trade and occupational training programs in vocational high schools. There are 22 vocational-technical high schools, each offering vocational training in one or several related trades or occupational areas, such as printing, automotive mechanics and repair, aviation maintenance, and construction trades.

Students from throughout the city may apply to any of the vocational high schools, but admissions are competitive, requiring entrance examinations. In 1980-81, local officials estimated that as many as 12,000 students were denied their first, second, and third choices of vocational high schools.

In addition, New York City has six Educational Options High Schools, which are academic/comprehensive high schools with a career-related focus that offer specialized vocational education programs. Examples are the Murry Bergtraum High School for Business Careers and the Norman Thomas High School for Commercial Education. Some of these schools are open to students city-wide, while others are limited to residents of the borough in which they are located. These schools are similar to the vocational high schools and require a special application for admission. They do not, however, require entrance examinations.

Chicago has ten vocational high schools that offer a wide range of trade and occupational programs. Enrollment in these schools is by application. The attendance area for each school is a sub-district level administrative area, which includes several high school attendance zones.

Houston has five vocational or "career concentration" high schools which are open to students throughout the city by special application. Two of the vocational high schools, Barbara Jordan High School for Careers and Milby High School, offer a number of trade and industrial occupational programs. The other three schools provide vocational and related academic courses in a single occupational area: health professions, performing and visual arts, and law enforcement and criminal justice.

D. Shared-time Vocational Centers. While New York, Chicago, and Houston have vocational high schools offering both academic and vocational subjects for full-time students, other cities have centralized vocational education in vocational centers that serve secondary students on a shared-time basis. In shared-time arrangements, students receive only vocational training at the vocational center, and return to their "home" high school for academic courses and extra-curricular activities.

Denver, Los Angeles, Dade County, and Boston offer vocational education programs for secondary students in shared-time centers. In Denver, a newly opened Career Education Center serves students from all of the comprehensive high schools in the district, as well as parochial and private school students. The Center does not have adult programs. Students attend vocational Classes at the Center for 2-1/4 hours each day, with the school district providing the bus transportation to and from each home high school. In addition to vocational programs, the Career Education Center also offers advanced and specialized courses in academic areas, such as math and science, and in the performing arts.

Los Angeles has five Regional Occupational Centers (ROCs) that serve primarily adults but have some vocational programs for high school students on a shared-time basis. Actually, few high school students attend classes at the ROCs, and they account for only about 15 percent of the enrollment of the centers.

Dade County has several vocational education centers that provide vocational education to high school students on a shared-time basis. Baker Aviation Maintenance Technician School offers three-year specialized training programs in aviation mechanics leading to FAA certification. The district provides bus transportation from the high schools to Baker Aviation, which is located adjacent to the Miami International Airport. High school students attend classes at Baker for 2-1/2 hours per day, some beginning at 7:30 a.m., and return to their high school for academic instruction. In addition to the secondary program, Baker Aviation School also offers evening programs for adults, many of whom are employees of the airlines at the nearby airport. Another shared-time vocational center in Dade County, the Miami Agricultural School, offers instruction in agriculture and related areas to high school students and adults.

In 1973, the Dade County School District commissioned an independent study of its vocational education program.* The study concluded that the secondary vocational education program was woefully inadequate, with only 15 to 17 percent of students in grades 10-12 enrolled in vocational education. The report recommended that six shared-time area vocational centers be constructed, one in each of the district's administrative areas.

To date, only one of the six shared-time area vocational centers has been built. The recently opened Robert Morgan Vocational Technical Institute is located in the southern part of the county, a fast growing area but some distance from the county's major population centers. Full implementation of the area center concept has been delayed, largely because of fiscal constraints. As a result, the majority of secondary students in Dade County have access only to the vocational programs that are offered in the comprehensive high schools.

Boston has also just completed a specialized area vocational school offering a wide range of occupational programs to secondary students on a shared-time basis. Vocational education programs in Boston have historically been located in high schools in white neighborhoods, and not available to black students. The new Occupational Resource Center is open to students city-wide but is located in the Roxbury section of Boston, a black, low-income area. In addition to making vocational programs available to black students, the district also hopes to attract large numbers of white students to the school by offering new, high quality programs in computer-based high technology fields. The occupational center is located near two new high technology industries, Digital and Wang, which act in an advisory capacity to these programs and which offer opportunities for work experience.

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*Vocational and Adult Education in Dade County, Florida, A Plan for Program Expansion and Improvement, Walter M. Arnold Associates, Inc., (Arlington, Virginia, January 1973).

Despite the quality of the offerings in shared-time vocational centers, many of the programs for secondary students are under-enrolled. Chief among the reasons offered for this underutilization is the institutional rivalry that exists between the shared-time schools and the comprehensive high schools. Repeatedly, staff at these centers told us that, for a variety of reasons, school principals, counselors, and vocational teachers in comprehensive high schools resisted sending students to shared-time vocational programs.

Principals were said to be concerned about losing school revenues for students who spend part of the school day at a shared-time vocational center. For principals in Florida, this is a genuine problem; their school budget is reduced when students take vocational courses at another school or area center. Although in Los Angeles and Denver the school budget is not directly affected when students attend shared-time programs, principals are nevertheless concerned about the possible indirect effects, such as reductions in staffing levels. When students take vocational courses at area centers or in shared-time programs, the enrollment in the school's vocational courses may drop and could possibly reduce the staffing level of the vocational department at the high school.

Another source of rivalry between the two types of institutions is the perception of the high school personnel that they are in competition with the area programs for the better students, for resources, and for staff. For example, we were told that shared-time programs "cream" the better students, leaving the comprehensive schools with students who are "less fun to teach." This seems to be the result of both admission requirements of some of the area center programs and student choice. That is, the most serious and motivated vocational students are the ones who will take advantage of the specialized programs offered in the area centers, leaving the less motivated and/or less able students in the high school vocational programs.

Principals in some cities also feel they are competing for vocational staff and budget. Vocational schools are often given latitude to recruit staff from the high school program and are seen as commanding a large share of the district's vocational budget. In one district, the principal of a comprehensive high school whose vocational education program was ill-equipped and under-staffed felt that the vocational programs in the comprehensive high schools were neglected by the district as resources and staff were siphoned off to the new area vocational school.

A second, though less important, reason given for under-enrollment in some shared-time programs is that students are unwilling to leave their home high school for a significant portion of the day. Affiliation with the home high school prevents some students from choosing a program that requires them to leave their friends and school activities. In addition, a shared-time program entails other costs to the student, such as transportation time, that may prevent some students from participating.

E. Regional Occupational Programs. California has enacted legislation that provides extra funds to school districts for vocational programs that serve more than one high school. A school district (or several school districts together) may develop a specialized vocational program in a regular comprehensive high school and make it available to students from other schools on a shared-time basis. The legislation refers to these shared-time programs as Regional Occupational Programs (ROPs).

In Los Angeles, the school district operates two kinds of ROP programs. The first is the "day" program, in which students from several schools attend ROP classes 10 hours per week, usually in two hour sessions during the school day. Classes are held at one of the district's high schools and are open to students, primarily seniors, within each administrative area.

The second ROP program operated by the district is an afternoon and Saturday program, outside of regular school hours. Most of these classes are held at local business and industry sites, and a majority of the instructors are volunteer company employees. The companies provide tools, supplies, and equipment for student use. The district has been very successful in obtaining business and industry sponsors for the ROP classes, and the after-school work site program is now larger than the day ROP.

II. Relationship Between Organization and Program Quality

It is clear that there is an hierarchy in vocational education in which some programs are far superior to others. It is important to note that this hierarchy is not necessarily constant across a state or even across a local school district. Thus, welding may be a better program than radiation therapy in a community with heavy new construction and a surfeit of health workers. Similarly, welding taught in a vocational high school and welding taught in a comprehensive high school may share nothing in common except the same six-digit OE program code. In short, one must be discriminant in labeling particular programs "low" or "high" quality, but there is little doubt that the distinctions exist and are widely understood by employers, teachers, students, and parents.

By quality of program, we refer in this discussion to a set of self-reinforcing characteristics: 1) intensity of instruction, as measured by student contact hours and diversity and sequence of courses within the program, 2) attitude and experience of the instructional staff, 3) relationship between instructors and employers in the related industry, 4) availability of up-to-date equipment and instructional materials, and 5) the prospects for placement in a field with relatively high wages. On the basis of these criteria, it was apparent in each of the cities that the vocational education programs in the area centers and vocational high schools were generally superior to those in comprehensive high schools. We conclude this from our own observations as well as from the statement made by district officials. We noted that in each city we rquested site visits to schools where we might see examples of what we termed "high quality vocational education programs," and in each case at least one of the schools selected for us to visit was an area vocational center or a voactional high school.*

In discussions with vocational education directors, four factors emerged which were seen as accounting for the superiority of vocational education programs in centralized facilities: 1) greater depth of programming, 2) ability to employ more experienced staff, 3) higher priority of vocational education in a specialized school, and 4) closer cooperation with business and industry.

First, greater depth of programming is possible in centralized vocational schools. With larger vocational enrollments, vocational schools are able to offer multi-year sequential training programs that include advanced courses. In many comprehensive high schools, vocational program enrollments are not large enough to provide specialized courses in the vocational program. In Denver, for example, overall decline in enrollments has led to the district transferring several vocational programs from the comprehensive high schools to the shared-time vocational center where students have a complete sequence of courses available.

Second, the quality of the instructional staff in the vocational high school or center is generally thought to be better than in vocational programs in comprehensive high schools. One reason is that the vocational schools employ a greater number of trade certified instructors who have more extensive experience in the industry and who are better able to keep up with changes in the field and to provide placement services to their students. In some instances, vocational schools have greater flexibility in hiring instructional staff than do the comprehensive high schools. That is, vocational schools often are exempt from certification, hiring, and tenure policies that apply to comprehensive high schools. For example, in Chicago all teachers in comprehensive high schools, including vocational instructors, must have academic certification. However, teachers in specialized schools that offer vocational courses need only a trade certificate. This enables the vocational schools to obtain highly trained specialists unavailable to comprehensive high schools. In some cities, such as Los Angeles, area vocational centers are able to hire instructors on a contract or part-time basis, providing even greater flexibility in staffing as well as program decisions. In addition, vocational schools were said to be able to attract vocational instructors from the regular high schools and often selectively recruit the better teachers from the high schools.

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*The situation in Los Angeles was a bit different. We were told that it was not possible to visit a high school because of the problems of the first weeks of busing to implement the court-ordered integration plan.

A third factor in the superiority of vocational education in centralized facilities is the higher priority of vocational education in these schools than in the regular comprehensive high school. District officials frequently stated that in the comprehensive high school, the principal usually views vocational education as a lower priority than academic programs. As a result, they give priority to the academic program in budgeting, staffing, and scheduling decisions. For example, a fiscal crisis resulted in the elimination of one period of instruction in the high schools this year in Los Angeles. District administrators reported that many of the classes the principals decided to eliminate were vocational education programs.

A fourth factor is the greater opportunity for cooperation between vocational institutions and business and industry. We found that most vocational schools maintained close connections with employers in the related industries. These connections have several effects on the quality of programs in the vocational schools. Employers provide 1) donations of supplies and equipment, 2) current technical advice on curriculum, equipment, and facility design, 3) skilled employees to act as instructors, and 4) internships and job placements for students.

Most districts reported that donations of equipment were infrequent and generally not suitable for use in training programs; they have found that donated equipment is usually obsolete and no longer in use in the industry. We did see some notable exceptions, however. An airline recently donated a completely operational Boeing 707 jet aircraft worth several million dollars to the Miami Baker Aviation School. The aircraft did not meet new air pollution standards and would have been removed from service in the near future, so in that sense it was obsolete. It did, however, represent a significant resource to the school's training program.

A more common example of cooperation is this: local employers act as technical advisors to vocational programs. The new area vocational school in Denver established advisory committees from various industries that participated in the design of the facility and the selection of equipment. The Houston High School for Health Professions was established in cooperation with the Texas Medical Center and is administered with the assistance of an advisory committee composed of school district administrators and representatives from the Baylor School of Medicine.

Industry also contributes expertise to vocational programs by providing direct instruction to students. In Los Angeles, the Regional Occupational Programs are conducted at work sites throughout the city, with many employers donating the services of their employees as instructors. At the Fashion Institute of Technology, top fashion designers participate in classroom instructional programs on a regular basis. Close ties with local industry also provide opportunities for student internships, which often lead to employment for students upon completion of the vocational program. These cooperative relationships not only secure additional resources for the vocational programs but enable employers to influence the training provided by the vocational education system.

III. Access to Quality Vocational Programs: Special Populations

Although there are high quality vocational education programs in all of the cities we visited, such programs are not available to all students who might wish to enroll in them. Access to high quality programs is not equally distributed, which is to say that students with certain characterisitcs have a much better chance of enrolling in high quality programs than students with different characteristics. Barriers of access to high quality vocational training continue to exist, particularly for special populations: minorities, women, the handicapped, and the disadvantaged, included limited English speaking students. We observed four major kinds of barriers: 1) geographic location of programs, 2) arbitrary limitations on size of programs, 3) admission requirements, and 4) restricted job entry. These means of discrimination are not mutually exclusive.

A. Geographic Location. The geographic location of high quality vocational programs is a major factor in access in some cities. Although programs of superior quality may be ostensibly open to students from throughout the school district, many of these programs are located in facilities that are far distant from concentrations of particular kinds of students. Consequently, access is restricted. For example, the Dade County School District has constructed a superbly equipped, multimillion dollar vocational school available to secondary students on a shared-time basis. The school is located in the far southern section of this large county and serves students from only nine of the 24 secondary schools in the district. The location does not permit easy access for students who live in minority neighborhoods and in economically depressed areas of the county. A student travelling from Northwest High School to this area school would spend approximately two hours a day commuting by car, and travel by public transport is virtually impossible.

Similarly, the Houston Independent School District serves a large metropolitan area in which schools are widely dispersed and in which little, if any, public transportation is available. The new vocational high schools are open to qualified students from any part of the city, but access to a given program for a student in a more distant neighborhood depends upon the willingness and/or ability of a student or his family to provide transportation and to spend possibly up to an hour each way commuting to school.

An even more serious problem of physical distance occurs in the Los Angeles School District, which serves students in a 710 square mile area. Aside from the fact that there is virtually no public transportation, the distances are simply too great to make vocational institutions accessible to students district-wide. In Los Angeles, therefore, not only are program locations important, but programs must be duplicated in several areas of the city to make them geographically accessible.

While there are great distances between some neighborhoods in Chicago, though not as great as in Los Angeles, the public transportation system makes it more feasible for students to have access to programs outside their residential neighborhoods. However, Chicago's neighborhoods remain racially segregated and some students fear to cross hostile turf or to attend school in a neighborhood of a different ethnic group. Consequently, the strategy has been to locate high quality vocational schools within each of several attendance areas.

New York is perhaps the best example of a city that has a public transportation system that makes any vocational program geographically accessible to any student in the city. All of the schools are located along the main transit lines, and distances are not as great as to make commuting an excessive burden.

Access is also restricted in Boston where quality programs are often to be found in a part of the city that is considered to be "off-limits" to a racial group. Most of the superior vocational training programs in Boston have been by tradition open only to white students because of the fact that they are located in predominantly white high schools in racially segregated neighborhoods. Black students have not been welcomed, nor do they consider it safe to journey into these neighborhoods to attend schools where the vocational programs are available.

B. Limitations on Size of Programs. Restricted access is also due to arbitrary limitations on the size of some programs. In New York City, for example, 12,000 students who applied for admission to the city's vocational high schools were unable to be accomodated in any of their first three choices of schools -- and only three choices are allowed. One of these schools, Aviation High School, reportedly had 5,000 applicants for 750 places.

In part, this is a problem of insufficient resources to expand programs, but the impact of the problem is borne disproportionately by special populations. Because the programs are high quality and because they are oversubscribed, admission is frequently competitive and depends largely on academic achievement and mastery of basic skills. Unfortunately, becuase the district does not have the resources to expand offerings of vocational high schools, there is no incentive, and indeed even a strong disincentive, to provide additional remedial instruction that would qualify a disadvantaged student for admission.

A second reason for limiting enrollments in some high quality programs is the need to adjust program enrollments to labor market demand. Therefore, some programs will be resticted in order to avoid training too many people for a limited number of jobs. While limited employment opportunities present an impediment to program expansion that is outsie the purview of the vocational education system, again the impact is borne disproportionately by special populations as school districts ration slots in these programs using competitive admission criteria. How well these admission standards predict success in training and work we were not able to discover.

C. Admission Requirements. Many of the vocational high schools and shared-time area vocational centers have admission requirements that bar less well-prepared students from high quality vocational programs, even when limitations on enrollment are not required by internal or external conditions. Such requirements include scores on standardized aptitude or intelligence tests, grade point averages, attendance record, and personal characteristics of applicants, as determined in personal interviews. For example, the vocational high schools in New York City, which have many more applicants than can be accomodated, each administer an entrance examination to screen applicants, in addition to other requirements. Chicago and Houston similarly impose admission standards for their vocational high schools.

Similarly, some vocational programs, particularly more technical programs, in the comprehensive high schools and the shared-time vocational programs and centers, have admissions requirements and often require specific preparation in math or science. Admission criteria are established for the more technical programs at the postsecondary level as well.

For significant numbers of disadvantaged sutdents, including those who have limited English, admission requirements effectively restrict access to high quality vocational programs. Many disadvantaged students lack the preparation, either in basic skills or in course work prerequisites, that would enable them to meet the admission standards of these programs. But to suggest that entry requirements be abolished totally is not the answer.

The solution to this problem, as we see it, is twofold. The first task is to distinguish between admission criteria that predict program completion and that would serve to predict successful job placement in a non-discriminatory labor market and those other admission standards that are either irrelevant or discriminatory by race, sex, disadvantage, or handicap. (Naturally, vocational instructors and administrators have opinions about what kinds of students are "good to work with," and especially when interviews are used in the screening process, subtle forms of bias are likely to creep in.) Once one arrives at a set of admission requirements that do predict program completion and job placement, it would be foolish to fail to use them; otherwise, good programs degenerate into "revolving door" operations that provide large amounts of frustration and disappointment to students and faculty alike.

The job does not stop, however, with identifying appropriate criteria. The next steps are to help students who lack qualifications to gain them within a reasonable period of time, and it would seem especially appropriate that federal money be used for this purpose. We further suggest that program administrators reserve places in over-subscribed programs for members of target populations who possess or acquire the necessary qualifications for entry.

D. Restricted Job Entry. Further compounding the difficulties faced by minorities, women, the disadvantaged, and the handicapped are problems imposed by restricted entry into the labor market. Substantial discrimination persists, and while some of this is probably malevolent, some also results from employers' perceptions that hiring minorities, women (in non-traditional occupations), and the handicapped carries higher risks. It matters not that these perceptions are unfounded, for as long as employers believe that hiring increases the chances of such problems as increased labor strife, higher insurance premiums, greater labor turnover, greater probabilities of law suits and other legal problems, lower productivity, etc., they will continue not to hire "high risk" employees. Students perceive that restricted job opportunities greatly diminish the rewards of large investments of time and foregone earnings in academic preparation and vocational education that lead to high paying jobs. Employers see few minorities, women, or handicapped students coming through the higher quality programs and remain suspicious of hiring them. The result is a kind of self-reinforcing, structural discrimination.

This structural discrimination, as well as its more malicious counterpart, also limits opportunities in vocational education programs that offer work experience, especially cooperative and apprenticeship programs. Small programs to begin with -- they comprise only about two percent of enrollments in vocational education -- co-op and apprenticeship opportunities are even less available to students who are part of special populations.

In summary, while the vocational education system has established policies and practices that impede access of special populations to high quality vocational education, it is clear that many impediments are beyond the influence of vocational educators. Even the problems of restricted enrollments exist in part because of accurate assessments of the skills necessary to succeed in a program and the employment prospects of students upon completion. Consequently, improving access to vocational education will require attention to other aspects of federal policy concerned with basic skills education, expansion of training opportunities, transportation and school construction, and improved employment opportunities.

IV. Adult Vocational Education

In addition to the secondary vocational program, all but one of the city school districts we visited offered both short-term adult vocational classes and long-term adult programs leading to certification or licensing in a number of occupational areas. In the secondary school districts, adult vocational classes and programs are offered in several different types of facilities, including regular high schools in the evenings, skills centers, adult vocational schools, and vocational centers that serve both adults and secondary students. Table VIII-2 indicates the organization of adult vocational programs in the cities we visited.

The community colleges in most of the cities also offer adult vocational education. Table VIII-3 shows the distribution of adult enrollments between the two institutions. Because both school district adult programs and community colleges serve the same age-level population, lack of coordination, program duplication, and competition for enrollments were raised as issues in several interviews with both school district and community college administrators. In some of the

TABLE VIII-2

Organization of Adult Vocational Education in the City School Districts

	High Schools & Other Community Facilities	Skills Centers	Vocational Center Adult Only	Vocational Center Adult and Secondary
BOSTON	X		0	Hubert Humphrey Occupational Resource Center
CHICAGO			Washbourne Trade School**	0
DENVER	X	1	Emily Griffith Opportunity Center	0
HOUSTON*	0	0	0	0
LOS ANGELES	X	7	0	5 Regional Occupational Centers
DADE COUNTY (MIAMI)	X	3	Miami Lakes Technical Institute; 20 adult centers	Robert Morgan Technical Institute; Baker Aviation School
NEW YORK CITY	X			

*All adult vocational education programs are offered by the community college system.

**Recently shifted to the community college system. However, the staff remain employees of the school district.

TABLE VIII-3

Postsecondary and Adult* Vocational Education Enrollments

	School District	Community College		
		Regular	Adult	Total
BOSTON	3,205	1,711	1,517	3,228
CHICAGO				22,329
DENVER	5,656	2,432	1,108	3,540
HOUSTON**	0			
LOS ANGELES	13,718	36,107	67,792	103,899
MIAMI				
NEW YORK CITY				

Source: Information supplied by the states.

* Long-term adult enrollments only.

** In Houston, all of the adult vocational education programs are offered by Houston Community College.

cities, there is neither coordination nor communication between the two institutions regarding vocational education. The vocational administrator in the Denver Community College did not know the name of his counterpart in the school district. The school district officials in Los Angeles were critical of the fact that the community college district built a new facility directly across the street from an existing adult vocational center operated by the school district.

The lack of coordination arises in part from tradition and inertia. Where the two systems have historically not interacted and where there has been no incentive to do so, the two systems simply proceed in a parallel fashion. In some cases, however, there is not only a lack of coordination, but conflict. The issue is primarily competition over enrollments, but the arguments take the form of criticism of the other institution's program. For example, school districts criticize community college programs for being too inflexible and requiring too many extraneous courses for students who primarily need employment skills. The community college is critical of the open-entry, open-exit, nature of many adult programs offered in the public schools. They argue that these programs provide minimal skills that may lead to immediate employment, but in jobs with little chance of advancement.

In two cities, the problems of conflict and coordination between the two institutions have been resolved. State law requires the school district and community college in Dade County to form a joint planning council that coordinates vocational and other adult programs offered by the two institutions. This process works very well in Dade County; the administrators for vocational education in both systems are in close communication and are well informed about the programs of the other institution. They cooperate in program planning, and the two institutions jointly publish a public information brochure that describes the adult vocational program offerings at each facility in both the public schools and the community colleges.

In Houston, the Board of Education, which sits as the governing board for both the secondary and the postsecondary districts, simply shifted all of the adult programs to the community college a few years ago. Because of the historically close relationship between the two levels, the rivalry between secondary and postsecondary that exists in other cities has not developed in Houston. In fact, the current president of the Houston Community College was formerly director of vocational education in the Houston public schools.

V. Postsecondary Vocational Education

Postsecondary vocational education, defined as occupational and technical training programs leading to a two-year associate degree, is available primarily in the community colleges.* As discussed above, community colleges also offer adult vocational education courses and longer-term adult programs leading to certification, but not a degree. In this discussion of postsecondary vocational education, therefore, we will refer to both the adult and postsecondary vocational programs in the community college system in each of the cities.

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*In the cities we visited, some four-year colleges also offer postsecondary vocational programs. Notable examples are the Fashion Institute of Technology in New York City, a four-year college that is part of the State University of New York (SUNY) System, and Northeastern University in Boston, a private four-year college that has an extensive cooperative vocational education program.

A. Organization. The community colleges in all but one of the cities visited are multi-campus systems, with schools located throughout the city. The Boston community college, with one campus, is the exception. The City Colleges of Chicago and the Los Angeles Community College District each have nine separate colleges, while smaller or less geographically dispersed cities have fewer locations (see Table VIII-4).

In Houston, the organization of the community college system is somewhat different. Instead of community college campuses, the community college system has program centers that share facitilies with 19 high schools throughout the city. Community college classes are held in the high schools in the afternoon and evening hours. In addition, the community college has three of its own facilities that operate full-time programs during both day and evening hours. The shared-facility arrangement with the public schools is possible largely because the two institutions are governed by the same board of education, and a much closer relationship exists between the public schools and the community college than in other cities.

Each campus in the community college systems offers a wide variety of vocational programs, although some programs are centralized at one location. For example, in Chicago, the programs in the allied health professions are all being moved to the Malcolm X Community College because of its location near the city's major hospitals where students have clinical placements.

The vocational programs in the community colleges appear to be of generally higher quality than most programs at the secondary level,

TABLE VIII-4

Community College Systems in the Cities

		Number of Campuses Offering Vocational Education
BOSTON	Massachusetts Board of Regional Community Colleges	1
CHICAGO	City Colleges of Chicago	9
DENVER	Denver Community College	3
HOUSTON	Houston Community College	22*
LOS ANGELES	Los Angeles Community College District	9
MIAMI	Miami Dade Community College	4
NEW YORK CITY	City University of New York	9

*The Houston Community College shares facilities with 19 public high schools.

particularly those in the comprehensive high schools. Again, by higher quality, we refer to programs that have more up-to-date equipment, employ more experienced staff, offer greater depth of programming, and that prepare students for employment in more highly skilled, higher paying occupations. There are several factors that account for the relatively higher program quality in the community colleges. Among the most important are: 1) economies of scale, 2) student characteristics, and 3) relationship to employers.

The community colleges have fewer locations and larger vocational program enrollments than do the secondary school districts. This affords the community college programs scale economies that result in more kinds of programs being offered, as well as more courses in each program, better equipped facilities, and more specialization among the instructional staff. Community college students are older and presumably more mature in both their attitudes and skills than are high school students. Since they are attending school by choice rather than under compulsory attendance laws, there is also a self-selection process that results in higher motivation among postsecondary students. Such student characteristics have an effect on program quality, enabling instructors to proceed at a faster pace and at a more advanced level of instruction than in many high school programs. Also, because the students are older, employers view postsecondary vocational students as more nearly ready to enter the labor market and are more willing to provide greater opportunities for on-the-job training experiences. We were told that employers tend to regard postsecondary institutions as more rigorous than high schools and as more up-to-date in the technological skills they seek to impart. Furthermore, employers are aware that postsecondary institutions do a lot of internal screening, as we indicate in the next section, and, accordingly, are inclined to give more credence to an instructor's evaluation of a student than they are willing to give ordinarily to a statement made by a high school teacher. These kinds of supporting attitudes by employers are communicated to students in one way or another, with the result that students are willing to accept a somewhat higher standard of academic discipline than high school students find tolerable.

B. Access. Geographic location of programs is a less important factor in access to high quality programs at the postsecondary and adult level than at the secondary level. First, enrollment in the community colleges is open to all residents of the city aged 18 or over; there are no residentially-determined attendance areas, as in the secondary schools. Second, adults are generally more able to travel from their residential neighborhood to attend school than are secondary students.

Lack of basic skills and inadequate academic preparation are the primary barriers to high quality programs at the postsecondary level. While community colleges do not require entrance examinations or screen applicants on a competitive basis for general admission to the institution, they do a very great deal of internal screening. There are admission criteria established for virtually all of the technical programs. As much as a year's work of preparation in math or science may be necessary simply to be considered for admission into certain vocational education programs. For example, at Queensborough Community College in New York City, students who fail to meet the admission requirements in programs of their choice are routinely advised of the additional preparation they need and are given an estimate of how much time that additional preparation will take. When the estimate of time is in excess of one year, students are advised to choose a less demanding type of occupational preparation. For students with limited financial means to support themsleves, lengthy preparation is difficult to pursue and carries with it a substantial risk of not being admitted to an over-subscribed program. Consequently, such considerations may effectively force these students to opt for the lower quality programs that have no admission requirements; these programs more often than not lead into unstable, lower paying lines of work.

VI. The Context of Vocational Education in the Cities

Vocational education operates within an institutional context and within the broader context of the local economy. We were impressed during the site visits with the strength of the relationship between the local economy and vocational education in the cities we visited. Similarly, we learned that many of the factors affecting the school district as a whole had a significant impact on the vocational education program. Such factors include the fiscal situation of the district and court-ordered desegregation. A description of vocational education in the cities, therefore, must include a discussion of the impact of local economic conditions and significant school district factors on vocational education.

A. Relationship of Vocational Education to the Local Economy. The importance of local economic conditions cannot be overemphasized.

Tables VIII-5 and VIII-6 indicate that economic conditions were substantially different from one city to another in our sample. The local economy largely determines the outcome of vocational training by establishing the level of demand for labor. In a city with an expanding economy, placement rates for graduates of vocational programs will reflect the general high demand for labor. Conversely, a declining economy will produce high unemployment rates that will significantly affect the job prospects of vocational students.

Employment rates affect vocational education in at least the following ways: 1) perception of program quality as held by vocational students, teachers, and district administrators, 2) access of special populations to high quality vocational programs, and 3) importance of the relationship between vocational education and local employers.

Since vocational programs are judged to be good or poor based in large part upon the ability of students to gain employment in the occupation for which they are trained, local economic conditions as reflected in unemployment rates, have a significant effect on perceptions of program quality. Employment rates and consequent effects on placements affect the attitudes of both teachers and students in vocational programs. By long tradition, vocational educators have judged themselves on program completions by students and job placements. Therefore, in a city with high unemployment, teachers and administrators will become discouraged about training large numbers of students for jobs which are not available. The result, especially at the secondary level, is a likely reduction in school district support for vocational education. Similarly, students in vocational education programs with low placement rates will lack the motivation to pursue lengthy training programs.

Table VIII-5

Indicators of Economic Growth

	Personal Income Per Capita			Wage & Salary Disbursements
	1973	1978	% 1978/1973	% 1978/1973
BOSTON	5,421	8,306	1.53	1.44
CHICAGO	6,097	9,493	1.56	1.50
DENVER	5,546	9,080	1.64	1.71
HOUSTON	5,234	9,398	1.80	2.21
LOS ANGELES	5,771	9,399	1.63	1.59
MIAMI	5,882	8,567	1.46	1.44
NEW YORK CITY	5,989	8,852	1.48	1.30

Source: Local Area Personal Income 1973-1978, U.S. Department of Commerce, Vol. I, July, 1980.

Table VIII-6

Unemployment Rates in the Cities*

	August 1980
Boston	6.0
Chicago	8.0
Denver	5.4
Houston	4.6
Los Angeles	7.0
New York City	9.1
Miami	6.1

*Employment and Earnings, November 1980 (U.S. Department of Labor, Bureau of Labor Statistics) P. 121 - 125.

The availability of jobs as reflected in unemployment rates also affects access of special populations to high quality vocational programs. Where there are fewer jobs, there will be more restrictions on enrollments in programs which lead to employment opportunities in well-paying occupations. Under conditions of high unemployment, vocational educators will be more reluctant to open these programs to "high risk" or hard-to-place students. An example can be found in the programs of the trade school in Chicago. While there are increasing minority enrollments in the "open enrollment" training programs, the apprenticeship programs continue to be essentially closed to special populations.

In cities with high unemployment rates, the relationship between vocational programs and employers in local sub-economies becomes supremely important. Vocational programs that have close connections with a local industry may be able to place students in work in spite of the adverse economic conditions generally. Examples of vocational institutions that are closely linked to a major local industry in a city with high unemployment are the Fashion Institute of Technology in New York City and Washbourne Trade School in Chicago. Both of these schools have high placement rates directly attributable to the close connections they maintain with local industry and, in the case of the trade school, with local trade unions. Other instances are the following: the two institutions, one in Miami and one in New York, already cited, that prepare young people for work in aircraft mechanics; the Hubert Humphrey training facility in Boston, where that new facility has been "adopted" by an adjacent plant of Digital Corporation; the Murry Bergtraum High School for Business Careers, located in the heart of the financial district in lower Manhattan; and the evening in-plant programs of the

Los Angeles ROPs. One condition stands out in this listing: with one exception, namely Washbourne Trade, all the institutions we saw or heard of that were prepared, on account of close ties of the training institution to employers, to do well under present or future conditions of economic adversity were physically adjacent to major plants of the industry served. F.I.T. is in the very midst of the garment industry of New York City, Baker Aviation School abuts the Miami airport, the Hubert Humphrey Center is short blocks from electronics plants in Boston. Where physical closeness does not exist, as in the case of Washbourne Trade, the school-trade nexus is established instead, and more traditionally, by apprenticehip agreements.

B. District Fiscal Situation. The general budget position of the school districts we visited directly affects the vocational education program. Since many vocational programs are relatively costly, requiring large expenditures for equipment and supplies, the fiscal capacity of a district is a crucial factor, both in terms of program expansion and development, and maintenance of existing programs.

In several cities, school district fiscal constraints have had particularly detrimental effect on vocational programs. In Dade County, for example, the plan to build shared-time area vocational schools to serve secondary students was not implemented, largely because of budgetary limitations. The Chicago Board of Education, under pressure to reduce expenditures to meet a large budget deficit, decided to discontinue operation of a large adult vocational school. An agreement was reached to continue the programs by transferring the school to the community college system.

In Los Angeles, there has been a significant drop in enrollment, largely due to the controversy over desegretation. Since under California school finance laws this enrollment decline will result in a significant loss in revenues, the district chose to reduce expenditures by eliminating the sixth period class in the 11th and 12th grades. This reportedly has disproportionately affected the vocational education program in the comprehensive high schools. District vocational education administrators told us that many of the school principals chose to eliminate vocational education courses rather than academic courses. However, regardless of what school administrators do to shut down vocational courses under fiscal constraint, students themselves are under a lot of pressure to abandon occupational training at the secondary level. This is happening for the following interrelated set of causes: 1) to obtain a hihg school diploma, students must now pass an examination of proficiency in English and mathematics; 2) this means in effect that the number of "required" academic courses that lower achieving students must take has been increased; 3) as noted, school districts are dropping the sixth period of the high school curriculum, producing a double squeeze on lower achieving students in taking electives and vocational courses as generally classified as electives; 4) in earlier years, many secondary students in California arranged their school programs to take a heavy load of vocational courses during the regular school year and made up their academic work in the summer, but now the districts have discontinued most summer school programs, thus making the double squeeze a triple squeeze. Points 3 and 4 above are definitely related to fiscal constraint in California.

In New York City, we were strongly impressed with the deteriorated, antiquated condition of equipment in vocational institutions at both the secondary and postsecondary levels. The exception is Fashion Institute of Technology, which is superlatively equipped, thanks to its aggressive and entrepreneurial administration. Lack of high quality up-to-date equipment at the postsecondary level is apparent in New York City, but this deficiency may well affect postsecondary institutions in most states in which the state government is short of funds. Equipment purchase is a budget item that is readily deferred, on the one hand. On the other, we note that the federal government gives relatively little financial support to those kinds of postsecondary institutions that supply most of vocational education at the postsecondary level, namely, community colleges. Most federal money for postsecondary institutions comes in two forms: research grants and contracts, and aid to students. Neither form helps much institutions that do little research and that maintain, by tradition, low fees for tuition. Hence, the sources of equipment money are mainly two: state general budget and federal vocational aid. When the state itself is short of funds, the federal vocational money, being spread over secondary as well as postsecondary institutions and being divided among a large set of expenditure objectives, is unlikely to meet the need. If there is a shortage of technological manpower in the United Staes, one reason may be the problem we just cited.

C. Court-Ordered Desegregation. Several of the city school districts are under court orders to desegregate the public schools. In two of the cities we visited, desegreation orders have had a direct effect on vocational education enrollment and on the organization of secondary vocational education.

In Boston, the court has imposed a strict racial balance requirement that applies specifically to vocational programs. Since vocational programs in Boston are located in high schools in racially segregated white neighborhoods, enrollments in these programs have always been predominantly white. Under Judge Garrity's desegregation order, a racial balance of approximately 50 percent white and 50 percent black students must be maintained in each of these programs. Because of the continued racial strife, many black students are unwilling to enroll in the vocational programs in these schools. As a result, vocational programs are under-enrolled, because in order to maintain the racial balance, white students are not permitted to fill the empty places. The effect of the desegregation order to date has been to increase minority enrollments in vocational education while reducing the total vocational enrollment. As we stated above, the response of Boston to this problem has been to build a handsome new facility for occupational training in Roxbury, a minority community. The Hubert Humphrey center, emphasizing computer-based, high technology instruction delivered to students in an individualized fashion, is expected to attract white and minority students in roughly equal proportions.

In Houston, the school district has responded to the court's desegregation order in part by changing the organization of vocational education with the district. Houston has concentrated many of its vocational programs in career concentration high schools that are open to students throughout the district. We were told by district administrators that enrollments in these "magnet" vocational high schools are maintained within the guidelines for racial balance established by the court.

Other cities have used superior vocational education programs as "magnets" to increase social integration in particular schools, though not as extensively as in Houston. For example, Chicago adopted a policy that allows students to transfer to a school outside their residential attendance area for integration purposes if the receiving school is under-enrolled. The district has developed a superior program in computer sciences at a predominantly white high school that is now being used as a "magnet" program to draw black students from other schools.

D. Collective Bargaining. Except in one instance, collective bargaining did not appear to have a strong independent influence on vocational education, but that instance is worth noting. In Boston, some of the central office administrators appeared to believe that the new Hubert Humphrey Center could only be successful if it were staffed with a "new breed" of teacher; the kind of teacher who had a high level of technical skills, was thoroughly at home in a computerized setting and yet was able to teach students over a very wide range of academic ability. The administrators thus sought to make a nationwide recruitment effort to staff the institution afresh. Boston is affected by declining enrollments and is suffering layoffs of teachers from regular staff. At the time of our visit to Boston, the unions were demanding that the new occupational training facility be staffed by teachers already employed in the Boston system. If this interpretation is correct, one might say it is possible that teachers' unions exert a dampening influence on program innovation in vocational education.

On the other hand, we were told in Los Angeles and Chicago that teachers of vocational subjects were paid on the average at considerably in excess of academic teachers and that the teachers' unions raised no particular objection. This kind of flexibility in salary policy allowed the districts to be more competitive in bidding for skilled persons, persons who may have many alternatives for employment in the private sector, to serve as teachers in vocational education.

VII. The Federal Role in Vocational Education in the Cities

The Vocational Education Act does not express a specific federal policy regarding the cities. However, the 1976 Educational Amendments require states to use certain criteria in intra-state allocations of VEA funds that would seem to favor many of the large urban school districts. These criteria include economic depression of the area served by the district, high rates of unemployment in the area, and local needs for services to disadvantaged students, handicapped students, and students of limited English proficiency. The federal guidelines regarding intra-state distribution of federal vocational money are so ambiguous and contradictory that states vary widely in their distribution process and in their treatment of the large cities. Indeed, one of the criteria states are required to use in their formulas, relative financial ability, works in general to the detriment of the large cities. Cities are frequently seen to be "rich" in assessed valuation per student. Many observers hold this showing of relative wealth to be fictional or an artifact of the process of measurement.

In the cities we visited, several vocational education administrators expressed concern about the share of federal VEA funds being allocated to the cities by the states. In four of the seven cities, the district administrators stated that the distribution formulas discriminated against the cities, in that the district did not receive VEA funds in proportion to the district's enrollments. In three cities, the administrators reported that they were treated fairly under the state's distribution formula. In Los Angeles, a school district official described California's distribution policy as "designed for the cities."

A. The Impact of VEA Funds. As Table VIII-8 shows, the federal share of the total vocational education budget in the cities visited varied from approximately 2 percent in Dade County to 11 percent in Chicago. Similarly, we found wide variation among the cities in the perception of the value and influence of the federal vocational education dollars. For example, Illinois distributes VEA funds on a cost-reimbursement basis, so Chicago is not required to submit an application for VEA funds that detail plans for the expenditures of federal funds, nor does the district separately account for the expenditures of funds by source. In Chicago, therefore, VEA dollars are equivalent to general revenue-sharing funds and have little effect except to increase the vocational education budget by 11 percent.

Since Colorado distributes over half of its VEA funds to postsecondary institutions, the federal dollars allocated to the Denver Public Schools represent only four percent of the district's vocational education budget. District administrators reported VEA money is simply too small an amount spread over too many categories to have any impact at all.

Table VIII-7

Do School District Administrators Think the Cities Get Their "Fair Share" of VEA Funds?

	YES	NO	Ratio of Proportion of State VEA Funds to Proportion of Enrollments, 1978-79	
			Secondary	Postsecondary
BOSTON		X		
CHICAGO		X	.91	1.59
DENVER	X		1.27	1.97
HOUSTON	X			
LOS ANGELES	X		1.46*	.94*
MIAMI		X		
NEW YORK CITY		X		

Source: Interviews and calculations based on information supplied by the states and state accountability reports.

* Based on 1977-78 data.

Table VIII-8

School District Vocational Education Budget And Federal VEA Share, 1980-81

	Total Vocational Education Budget	VEA Funds	Percent
BOSTON		$1.6 million	
CHICAGO	$55 million	$6.0 million	11%
DENVER	$11 million	+ $466,000	4%
HOUSTON	$25 million	$2.0 million	8%
LOS ANGELES*	$48 million	$4.0 million	8%
DADE COUNTY (MIAMI)	$58 million	$1.4 million	2%
NEW YORK CITY			

Source: Interviews with the vocational education directors in each of the city school districts.

* Los Angeles data from California VEA Accountability Report, 1978-79.

The Denver Community College vocational administrators similarly regard VEA funds as having little or no effect. While postsecondary institutions receive a relatively large share of the VEA funds, the community college administrators do not regard federal dollars as additional revenues but as supplanting part of the state's share of the institution's total budget. Administrators reported that the legislature appropriates state funds for the community colleges after the amount of federal revenues is known, reducing the state share of the budget by an equal amount.

In other city school districts, however, administrators saw federal vocational education dollars as being of greater importance. In Miami, federal funds were said to be "essential" for programs for special populations, funding services that would not be provided without the federal categorical requirements. In Los Angeles, the district vocational administrators asserted that federal dollars "save" vocational education in the comprehensive high schools, since vocational education is not a school district priority and has a weak claim on shrinking school district funds. In New York, federal vocational education funds aid the district with equipment purchases and, while it is not enough to keep the programs up-to-date in equipment, the fiscal constraints of the district make the federal contribution important.

Despite the variation in the perception of city vocational administrators regarding the impact of VEA funds on vocational education, the general assessment is that in no instance is the federal share large enough to aid the districts materially in meeting federal objectives. This is with regard to the direct effect of federal funds. Indirectly, there may be a stronger effect. We were told in several cities that federal regulations help to protect the state and local contributions to vocational education, in the face of budget cutbacks generally, and, of course, one cannot have federal regulations without federal money. This indirect effect, if it exists in truth, could be important to the target populations listed in the federal legislation. When the cities reduce spending on vocational education (in real terms), they seek to substitute cheap programs for expensive. Some of these cheaper programs, such as drafting, graphics, and computer programming (cheaper when its possible to tie into the district's own mainframe computer) may look modern and up-to-date, but they also are programs that appeal mainly to bookish students who are comfortable in the academic track anyway. They may have less appeal to disadvantaged males who might prefer a program in truck driving. City districts under financial pressure also reduce offerings at night and in the summer -- in Los Angeles, the summer vocational training activity has been virtually abandoned -- and services provided outside regular school hours/months have held particular attraction for disadvantaged and minority persons. Finally, counseling and placement services are likely to be an early victim of budget cuts, and all these activities are especially useful to members of target populations. Hence, we conclude that if the federal regulations help protect the state/local contributions to vocational education, then federal involvement may be beneficial to target populations even when the apparent direct contribution of federal money is small.

B. Problems with VEA Funds. During the site visits, district vocational education administrators discussed three primary problems associated with the use of federal funds under the Vocational Education Act: 1) restrictions on the use of federal funds, 2) excess cost accounting, and 3) the reporting burden imposed by VEDS. In these large districts, the most problematic aspects of the law are the restrictions on the use to which the districts may apply federal vocational funds.

1. Restrictions. We found that there is a great deal of confusion among local administrators between what are federal requirements and what are restrictions that have been imposed by the states. In several instances, district complaints about federal limitations on the way the federal funds were spent were, in fact, state regulations.

A typical example of state imposed restrictions is the requirement that federal money be spent on new programs. For example, in Massachusetts, the state permits districts to spend a maximum of 10 percent of their basic grant for maintenance of existing programs, the rest must be spent to establish new programs. Additionally, the district must assure the state that new programs will be locally supported within three years. In the present situation of fiscal crisis, this requirement creates disincentives for Boston to apply for federal money.

2. Excess Costs. In order to apply for federal funds allocated under setasides for handicapped and disadvantaged students, districts are required to account for the excess costs of vocational education for handicapped and disadvantaged students mainstreamed in regular vocational programs. Excess costs are defined as expenditures exceeding the average expenditures per student for non-handicapped and non-disadvantaged students. Several of the districts reported difficulty determining their excess costs for students mainstreamed in regular programs.

Accounting systems are simply not organized in a manner that would enable a district to determine costs per student by program.

The definition of both excess costs and disadvantagement were described by one postsecondary administrator as "so nebulous that we are afraid to make a claim for fear of an audit." A more typical response to the problem of excess cost accounting, however, is for districts to apply for the setaside funds for special classes or facilities, where only disadvantaged or handicapped students are served. In addition to making it easier for the district to document excess costs, the full costs of such special programs may be considered excess costs. Thus, the excess cost provision of the Act creates an incentive for districts to segregate special population students in special program, defeating the federal priority to mainstream special students whenever possible.

3. Reporting Burden. Most of the large city school districts did not consider the reporting burden imposed by VEDS to be a major problem. In districts of this size, data management at the district level is more routinely handled and the VEDS requirements have been more easily absorbed than might be true in smaller districts.

At the postsecondary level, however, vocational education administrators questioned the utility of the VEDS data for postsecondary and adult programs since the enrollment data is collected in a form more suitable to secondary institutions. Reported enrollments do not accurately reflect the actual number of persons served since many programs are open-entry, open-exit.

C. Changes City Vocational Education Administrators Would Like to See in Federal Policy. In discussions with school district superintendents and vocational education directors at both the secondary and postsecondary levels, a number of administrators have suggested changes in federal policy that would benefit cities.

First, in districts where state allocation procedures were said to discriminate against the cities, some administrators suggested that the federal VEA funds be allocated directly to the cities, bypassing the state agency. These administrators felt that federal intent was not being realized in the state's distribution formula and that the cities would receive a larger share if the federal vocational education funds were allocated directly from the federal government.

A second suggestion that we frequently heard was that federal funds should carry fewer categorical spending requirements and less regulation, both state and federal, so that the limited resources could be more effectively targeted on local needs. Under present legislation, it was argued, federal money "is spread so thinly (among priorities), it doesn't make much of an impact on anything."

Two district officials made specific suggestions for the use of federal vocational education money. The vocational education director in Chicago felt that vocational education money ought to be directed toward improving the connection between private industry and vocational education. He believed it was wasteful and increasingly out of range of school district budgets to duplicate expensive equipment and costly facilities within the school system. He suggested that school districts should use the facilities of industry to train students on up-to-date equipment in realistic settings. Specifically, he proposed that federal money be used to establish tax credits for private industry that would increase capital formation on the condition that eligibility for such credits depend upon enrollment of vocational students in cooperative programs that used industry equipment for vocational training.

The superintendent of the Houston School District, in discussing the need for improving secondary education in general, said that vocational or "career concentration" high schools "show the most promise for motivating kids and insuring integration." He suggested that federal vocational education money could be directed toward establishing these kinds of schools.

Conclusions

In summary, the main conclusions we draw about vocational education in the cities from our site visits to the seven major urban school districts are the following:

1) Vocational education programs in vocational high schools and area vocational centers are generally superior to those in comprehensive high schools.
2) Vocational education programs for adults and postsecondary students are generally superior to those at the secondary level.
3) Barriers to access to high quality vocational programs continue to exist for special populations: minorities, women, the handicapped, the disadvantaged, and students of limited English proficiency, for at least the following reasons:
    a) Geographic location of programs
    b) Limitations on size of programs
    c) Admission requirements
    d) Restricted job entry.

4) Local economic conditions are of primary importance in influencing the outcome of vocational education programs.

5) Federal Vocational Education Act funds have little direct impact on either quality of vocational education in the cities or access of all persons, but particularly special populations, to high quality vocational education.

Chapter IX

The Future Interest of the Federal Government in Vocational Education

In the preceding chapters, we have summarized major portions of the work that we in PONVER carried forward under NIE contract #400-78-0039. This chapter, which concludes our Final Report, offers our observations on the appropriate role of the Federal government in vocational education. Our observations are based primarily on what we learned in our intensive study of vocational education during the period of our contract.

We take up two topics: (1) deficiencies in existing federal legislation, and (2) proposals to make Federal interventions more effective. The first topic is a restatement and elaboration of the ground we covered in Chapter I.

With regard to topic (2), we state our major assumption: the Federal government should continue to provide special assistance to certain groups who have difficulty in finding and holding a good job. Traditionally, those groups have been identified as women, the poor, minorities, non-English speaking persons, and the handicapped. We believe the objectives as incorporated in Federal vocational education acts from 1963 to 1976 is laudatory and that the identification of target populations, except for the exclusion of minorities, is basically correct. Our concern, then, is not with historic Federal objectives but with the relative impatience of Federal legislation, as it has existed in the past, to accomplish those objectives.

I. Deficiencies in Existing Federal Legislation for Vocational Education.

In our view, the Federal legislation suffers from four major deficiencies: 1) ambiguous objectives and ineffective administration, 2) ineffective matching requirements, 3) excessive data collection and reporting, and 4) inadequate coordination with other federal policy concerning education and occupational training. Each of these needs elaboration.

A. Ambiguous Objectives and Ineffective Administration. The Vocational Education Act is an ambitious piece of legislation. Section 101 of the 1976 Amendments sets forth seven major objectives to be served by the Act: 1) improved planning, 2) program improvement, 3) program development, 4) program maintenance (where necessary), 5) elimination of sex discrimination and sex stereotyping, 6) part-time employment of youths who need income to continue vocational training, and 7) improved access for all persons in all communities to high quality vocational education. To accomplish these aims, Congress appropriated only $784 million for FY 1980. In some respects, the primary shortcoming of VEA is that it attempts to do too much with too little, spreading federal dollars so thinly over numerous objectives that none is adequately addressed.

Nevertheless, the problems are more severe than a simple shortage of resources. Presently, both the legislation and the regulations are so fraught with ambiguities and contradictions that no amount of money would likely achieve the Congress' purposes. Take, for example, the aim to spend money in accordance with projections of future labor market needs, eliminating or constricting programs imparting skills for which there is little demand and expanding those where shortages are most severe. Although a sensible objective in the abstract, this country has thus far eschewed the kind of national economic planning and centralized education system that might make such an aim attainable. Lacking any control over the contraction and expansion of various sectors of the economy, as well as over hiring and dismissing teachers at the local level, states prepare thick documents of detailed figures on labor market supply and demand that are largely ignored by all concerned. The explanation for such widespread disdain is the sate of the art -- the "need for better manpower planning" is a frequent refrain -- but the simple truth is that no matter how accurate the numbers, neither the economy nor the education system is sufficiently centralized and controllable to use the data effectively. Consequently, a major requirement of VEA -- allocation of resources in conjunction with estimates of labor market needs -- is an exercise in frustration that invites states to perpetuate the fiction that it can be done precisely.

Even if sensible procedures could be developed to target funds to support programs "which are new to the area to be served and which are designed to meet new and emerging manpower needs and job opportunities in the area," it is likely that the objective would conflict with another major aim of the act, to direct funds to economically depressed areas and areas with high rates of unemployment. Areas with new and emerging labor market needs and new job opportunities are more likely to be growing, economically vigorous communities with low unemployment. Which purpose is to have priority? If both are to be served, would not this conflict with another provision of the act that prohibits states from allocating funds "on the basis of per capita enrollments or through matching of local expenditures on a uniform percentage basis?" Congress apparently intended states to concentrate federal dollars on particular purposes and in particular areas. However, if funds are to be allocated both to economically depressed areas and to areas with new and emerging labor market needs, there are very few areas of any state that would not qualify for assistance.

Other provisions of the legislation attempt to qualify these two requirements and target funds more precisely, but the language is frequently vague or inappropriate. Thus, states are directed to use as the two most important factors in determining funds distribution 1) "relative financial ability," and 2) "the relative number of concentration of low-income families or individuals." The regulations define relative financial ability as either property wealth per capita or local tax effort. Despite the fact that neither of these can easily be measured by most LEAs, the first is a particularly poor choice because it ignores household income. When relative financial ability is defined in this manner, a number of "high wealth" LEAs will contain substantial numbers of low-income households. Consequently, the intent to direct funds to LEAs with concentrations of low-income families is considerably weakened.

More often. rather than elaborating, the regulations simply repeat the ambiguous language of the legislation. For example, what constitutes an "economically depressed" area or a "high" rate of unemployment is never clearly defined. What does it mean to give "priority" or "greatest weight" to some factors over others? If states are not permitted to allocate funds on the basis of per capita enrollments or uniform rates or reimbursement, how close may a state come to a uniform distribution without being considered out of compliance?

While the lack of clear directions from Congress has caused much confusion about proper uses of federal VEA funds, the lack of adequate technical assistance to states in designing funds distribution systems has created additional problems. Probably no other aspect of the legislation has generated more frustration and confusion than the procedures by which states allocate federal money to eligible recipients. OVAE requires states to employ formulas for allocating funds under Sections 120, 134, 140, and 150 but has been unable to provide states with clear examples of acceptable procedures. In this regard, the legislation is singularly unhelpful; even the term "formula" appears nowhere in the legislation, let alone clear instructions about definitions of variables, appropriate weights, and mathematical relationships among the various criteria. Unfortunately, OVAE has not had the technical expertise to develop appropriate models or clear guidelines. Nor has the agency been able accurately to evaluate state-designed procedures; in some instances, sensible approaches have been declared out of compliance, while more often procedures that are mathematical nonsense have been approved.

In short, unless some of the major areas of confusion are resolved by legislation, none of the primary aims of the Vocational Education Act is likely to be addressed effectively. Without clearer directions from the Congress, OVAE is apparently unable to give states direct answers to questions that have been troubling them since regulations were first issued in October 1977. As late as December 12, 1980, OVAE is still unable to be any more specific on funding issues other than to tell states in the Federal Register that they must give "weight to the priority factors described in section 106(a)(5)(A) in conjunction with the allocation factors described in section 106(a)(5)(B)(i)..." This is no more edifying than the Regulations issued three years earlier.

B. Ineffective Matching Requirements. With the exception of funds allocated under Section 140 and Section 150(d)*, states are required to match federal funds dollar for dollar. Although this requirement may have stimulated spending for vocational education in the early years of the Act, it now has little positive impact on state allocations. Even the requirement that states match half of the excess costs of programs for the handicapped and disadvantaged has not had the intended effect of increasing state expenditures. On the contrary, expenditures may actually have diminished in several states unable to administer the excess cost provisions effectively. At least three features of the present legislation undermine the potential importance of the matching requirement: 1) allowing states to match federal dollars on an aggregate basis, 2) failing to prescribe maintenance of effort requirements that are adjusted for inflation, and 3) unrealistic requirements for accounting excess costs.

1. Aggregate Matching. To satisfy the matching requirements, states must demonstrate that total state and local expenditures for vocational education equaled or exceeded federal expenditures under Subparts 2, 3, and 5. With the exception of funds setaside for the disadvantaged and

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*Funds distributed under Section 140 may be used to cover the full costs of special vocational education programs for the disadvantaged. Funds distributed under Section 150(d) may be used to cover 90 percent of consumer and homemaking education in economically depressed areas.

handicapped, no state has any difficulty meeting this requirement. On the average, the ratio of state and local dollars to federal dollars is now about nine to one (9:1) with the ratio exceeding fifteen to one (15:1) in a number of states. In no state is the ratio less than three to one.

Permitting states to match with state and local expenditures in the aggregate has two consequences. First, it means that the criteria established by Congress to determine the distribution of funds affect federal dollars only; they have no influence on the required dollars of state matching funds. The funding formulas developed to respond to the Congress' objectives distribute only federal funds. Consequently, the distribution of the match may bear no relation to the distribution of federal funds. In fact, under present law, there is nothing to prohibit states from allocating matching funds in such a way that the results of allocating federal funds are completely offset by the pattern of state and local spending.

Second, allowing states to include local dollars in the match may be further diluting the impact of federal expenditures. A major aim of the federal legislation is ameliorating the effects of limited ability to pay. Local expenditures are likely to be positively correlated with ability to pay. State dollars, on the other hand, are usually allocated in equal amounts per student or, in many cases, inversely to ability to pay with poorer districts receiving larger amounts per student. Consequently, in states where state expenditures are a relatively small fraction of total expenditures, permitting states to include local dollars in the match may weaken the equalizing impact of federal dollars.

A hypothetical example will help to clarify this point. Consider a state with only two districts, A and B, each with one vocational education student. The table below summarizes the source of revenues for expenditures for vocational education. District A, a wealthy district, spends $850 per student from local funds and recieves $50 per student from the state. District B, a poor district, can spend only $200 per student from local revenues and also receives $50 per students from the state. Following federal requirements that VEA funds be allocated with attention to relative financial ability, the state allocates twice as much VEA money per student to B than to A. Matching requirements are satisfied because total state and local expenditures are four times federal ($1,200 to $300, or 4:1).

Vocational Education Expenditures
in a Hypothetical State

	District A	District B	State Total
Local	$ 850	$250	$1,100
State	50	50	100
Federal	100	200	300
	$1,000	$500	$1,500

State expenditures, however, are only one-third of federal expenditures. Consider what would happen if the match applied to state dollars only. To continue to receive VEA funds, this hypothetical state would have to increase spending by $200. Even if the state continued to allocate state funds in equal amounts per student, with an additional $100 going to both A and B, B would be relatively better off. Its expenditures would increase by 20 percent compared to 10 percent for A.

Nevertheless, the spending gap between A and B would not narrow. B would still be spending $500 per student less than A ($600 compared to $1,100 where prior to changing the matching requirement, expenditures were $500 and $1,000, respectively). Consequently, an even more effective matching requirement would not only limit the match to state funds but also require the state matching dollar to be distributed in the same fashion as the federal dollar. Under this rule, every federal dollar would carry a state dollar with it, and in our hypothetical state, B's position would improve considerably. B would receive $200 in state funds and $200 in federal funds for a total of $650. A would receive $100 in state funds and $100 in federal funds for a total of $1,050. Now, not only is B relatively better off than A (enjoying a 30 percent increase compared to a 5 percent increase for A), but the spending gap has narrowed from $500 to $400 ($1,050 - $650).

To summarize, Congress would achieve a much greater impact by requiring states to match federal funds with state dollars only and further stipulating that the matching state dollar be allocated under the same formula as federal funds. States, of course, would be free to distribute state funds in excess of the 50:50 match in any way they see fit. Short of such changes, the present matching requirements are meaningless and should be eliminated.

2. Maintenance of Effort. Section 106(a)(6) explicitly prohibits using VEA funds to supplant state and local funds. To enforce this requirement, Section 111(b)(1) further stipulates that no state and no LEA shall receive VEA funds unless expenditures per student or aggregate expenditures are equal to those of the preceding fiscal year. Subsequent regulations interpreted this Section as allowing up to five

percent slippage. For example, a state spending $10 million for vocational education in one fiscal year and $9.6 million in the succeeding year is considered to be maintaining fiscal effort because expenditures have not declined by more than five percent.

In a state where VEA funds amount to only 10 percent or less of total expenditures, it is easy to see that this liberal interpretation of the maintenance of effort requirements could quickly lead to federal funds supplanting state and local funds. Permitted to reduce spending by up to five percent, states could completely supplant within two years. Moreover, in these times of double digit inflation, the "five percent rule" could lead to reductions in real terms of 15 percent or more. For example, with an inflation rate of 10 percent, a state spending $10 million the previous year would have to spend $11 million the next merely to maintain effort in real terms. If instead it spent only $9.6 million, in real terms it would be spending only 87% of the amount expended the previous year.

In short, as presently written and interpreted, the maintenance of effort requirements are meaningless. States are, in effect, free to supplant legally despite prohibitions in the law. Unless Congress is prepared to require maintenance of effort in real terms -- either in the aggregate or on the basis of expenditures per student -- the requirements should be eliminated. Otherwise, they produce only wasteful paperwork and evaluation.

3. Excess Costs. Funds allocated under the 10 percent setaside for the handicapped and 20 percent setaside for the disadvantaged are to be used to pay for up to 50 percent of the excess costs of vocational education for handicapped and disadvantaged students. For students

mainstreamed in regular vocational education programs, excess costs are defined as expenditures exceeding the average expenditure per student for non-handicapped and non-disadvantaged students. For example, if average expenditures per student are $1,000 for non-handicapped and non-disadvantaged students, and a district spends $1,500 on a handicapped student in a regular program, excess costs are $500, and the district would be eligible to receive up to $250 in federal setaside funds. For students in special classes or facilities, the full costs may be considered excess costs.

Although the excess cost rule was intended to increase state and local spending on vocational education for handicapped and disadvantaged students, it is possible that it has had the opposite effect. Faced with severe budget strains, a number of LEAs claim they are unable to cover half of excess costs and therefore either return or do not apply for setaside funds. Furthermore, many LEAs report great difficulty in even determining what excess costs are. Accounting systems are not organized to keep track of expenditures in such a fashion, and it is not clear how they could be reorganized, even if the cost could be justified relative to the amount of federal funds involved. Consequently, at least as far as concerns mainstreamed students, it is likely that excess costs are not being reported accurately by districts willing to risk an audit and may be discouraging others from using setaside funds at all. Also troublesome is the fact that LEAs may count the full cost of special programs as excess costs. This creates a strong incentive to spend VEA funds only on special programs, which may in turn discourage LEAs from mainstreaming disadvantaged and handicapped students.

Finally, all of this concern with accounting fails to address the fundamental question concerning what types of services and programs disadvantaged and handicapped students are actually receiving. The primary objective is to improve the access of these students to high quality vocational education programs. Neither the setasides nor the excess cost requirements have any effect on this objective. As long as these funds are expended on these students, LEAs are not accountable for the quality of services offered. In the absence of such accountability, setasides and excess cost requirements create needlessly complicated administration of funds.

C. Reporting Requirements. The Vocational Education Act requires extensive reporting by states and LEAs. States are required to submit a Five Year Plan, an Annual Plan, an Annual Accountability Report, and data requested for the Vocational Education Data System (VEDS). Eligible recipients are required to submit annual applications, as well as the data requested by the state for submission to VEDS. The Act also establishes a substantial review process that includes state and local advisory councils, occupational information coordinating committees, and representatives of various state agencies.

As was noted previously, the planning required by VEA suffers from unrealistic expectations about the coordination that can be achieved between training and labor markets in a decentralized economy and education establishment. Consequently, states go through the motions of projecting labor market supply and demand, but it is doubtful that these exercises have much influence on allocating resources to vocational education. As a result, the plans are not plans at all but rather thick documents of assurances that the state is complying with federal law and regulations.

Often the plans simply parrot the language of the Act. These plans also describe procedures for distributing funds to eligible recipients, and the ambiguity and confusion surrounding this issue are clearly reflected in state plans. Descriptions are often vague or confusing and in a few instances may bear little relation to how funds are actually distributed. Others describe elaborate systems that, despite their complexity, allocate funds among recipients on a nearly uniform basis. We could go on about the hollowness of state plans but will end our remarks here. Suffice it to say that we see states expending considerable time and money on documents that serve little purpose.

Added to these planning requirements are VEDS demands for data. VEDS requires information from the state on four general aspects of vocational education:

1) Program enrollment and termination, including enrollment by race and sex, as well as by special needs (disadvantaged, handicapped, and limited-English proficiency) by six-digit OE program code.

2) Personnel, including teachers and staff by race, broken out by two-digit OE program code.

3) Finances, including federal, state, and local expenditures by legislative purpose (Section 120, 130, 140, etc.) and the number of persons benefitting from expenditures for each of these purposes.

4) Follow-up, including a survey of completers and leavers, as well as a survey of employers.

These data are collected annually and, with the exception of follow-up data for which sampling is permitted, for the universe of eligible recipients of VEA funds.

VEDS imposes a very large burden. The National Center for Education Statistics, the agency responsible for administering the system, estimates that for the second year of collecting data, each state will spend over 3,600 hours on the average, or a total of 183,560 hours. Although the 1976 Amendments authorized $5 million to help states with the costs of implementing VEDS, no funds were appropriated, and states have been forced to absorb the full costs.

VEDS promises an important improvement in the accuracy of vocational education data, but it achieves this at substantial cost and perpetuates many of the analytic deficiencies of past data systems. All of the information is aggregated to the state level, prohibiting analysis of most of the important features of the federal legislation. Many of the requirements affecting the distribution of funds concern characteristics of eligible recipients, not the state as a whole. Even the requirement that states distribute money with regard to relative financial ability and concentrations of low-income families cannot be assessed using VEDS data.*

> In our view, the amount of information collected by VEDS is excessive. The system combines too much detail with too little analytic utility. In a recent report to the National Institute of Education, we recommended a two tiered system for collecting vocational education data. For purposes of annual accountability, a more modest annual data collection effort is proposed. For purposes of evaluating the effectiveness of federal legislation, an extensive quintennial census is recommended to inform reauthorization.

D. Coordination with Other Federal Legislation. A major concern of federal policy regarding vocational education has been improving access to high quality programs among all persons, and especially among minorities, women, the handicapped, and the disadvantaged. While many aspects of current vocational education legislation attempt to address this problem, many of the major obstacles to high quality programs lie outside the vocational education establishment. Among the major barriers are: 1) inadequate basic skills, 2) geographic immobility, 3) insufficient financial ability, 4) restricted program enrollments, and 5) restricted job entry. None of these impediments can be adequately handled by vocational education alone. Even the problem of restricted enrollments exists in part because of accurate assessments of basic skills necessary to enter the program and employment prospects upon completion. Consequently, improving access through vocational education legislation will require better coordination with other aspects of federal policy concerned with basic skills education, transportation and school construction, financial support for students, expansion of training opportunities, and improved employment opportunities. To date, such coordination leaves much to be desired. Some examples will illustrate the problem.

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*See Charles S. Benson, E. Gareth Hoachlander, and Bronia Lena Johnson, An Assessment of the Reliability and Consistency in Reporting of Vocational Education Data Available from National Information Systems, University of California, Berkeley: Project on National Vocational Education Resources, 1980.

It is a common mistake to speak of vocational education as though it were a single program, a unified curriculum with rather uniform standards of entry, instruction, completion, and job placement. In fact, vocational education is extraordinarily diverse. It represents approximately two hundred different programs, including topics as dissimilar as ornamental horticulture, general merchandising, inhalation therapy, home management, shipping and receiving clerks, petroleum technology, and aviation airframe and power plant maintenance, to name but a few. Each program may be comprised of as many as a dozen courses. Moreover, even within a single school district, programs may be offered in a variety of institutions -- comprehensive high schools, community colleges, vocational high schools, "shared time" area schools, or vocational technical institutions.

With such diversity, it is inevitable that programs vary widely in quality. Quality is an elusive term in education, and we do not claim to have a comprehensive definition. Nevertheless, if one examines some simple measures such as intensity of instruction (i.e., contact hours, credits, etc.), expenditures per student, prospects for employment, placements, and expected earnings, it is clear that there is a hierarchy of vocational programs with some far superior to others. It is important to note that this hierarchy is not necessarily constant across a state or even across a local school district. Thus, welding may be a better program than radiation therapy in a community with heavy new construction and a surfeit of health workers. Similarly, welding taught in a vocational high school and welding taught in a comprehensive high school may share nothing in common except the same six-digit OE program code. In short, one must be discriminant in labeling particular programs "low" or "high" quality, but there is little doubt that the distinctions exist and are widely understood by employers, teachers, students, and parents.

Given that such a hierarchy exists, how then do special populations fare? To answer that question, and at the risk of violating our own caveat against generalizing about high quality programs, we would repeat some general observations about which vocational education programs are likely to be better than others. First, offerings in vocational high schools and shared-time area schools tend to be superior to those in comprehensive high schools. Compared to comprehensive high schools, these schools are able to realize scale economies that permit them to use equipment that is more up-to-date and to employ more experienced staff. Second, programs requiring a higher level of entry level skills tend to have higher rates of completion and more placements in higher paying positions. Many of these programs are technically oriented but also include more specialized trades that require long term commitments to training. Third, programs preparing students for jobs whose entry is closely controlled by unions, professional associations, or licensing agencies tend to be better than those leading to jobs where entry is unrestricted. Finally, programs that include work experience, such as cooperative or apprenticeship programs, are often superior to those that do not.

There are, of course, frequent exceptions to these generalizations, but if one is willing to accept them as broadly descriptive of the program hierarchy, they pose some clear implicatons for the access of minorities, women, the handicapped, and the disadvantaged. First, vocational high schools and area schools are often not conveniently located to permit easy access for students in minority neighborhoods or economically depressed areas. Moreover, even if transportation costs could be covered, trip lengths of an hour or more make such a solution impractical in many urban as well as rural areas. Consequently, in many areas, access can be improved only by constructing new facilties or renovating existing buildings. While Section 120 explicitly permits uing the basic grant for construction, most states find it impractical to use the basic grant for this purpose. Moreover, Subpart 4 of Part B, which provides emergency assistance for remodeling and renovation of vocational education facilities has never been funded, although the 1976 Amendments authorized expenditures of $250 million for FY 1978 through FY 1981. Consequently, substantial numbers of students in urban and rural areas remain geographically isolated from high quality vocational education.

Second, even where geographic isolation is not a major problem, many students are unable to enroll in programs offered at vocational high schools, In New York City, for example, the district estimates that about 15,000 students could not be given either their first, second, or third choice of the vocational high school they wanted to attend. In part, this is a problem of insufficient resources to expand these programs, but the impact of the problem is borne disproportionately by special populations. Because the programs are high quality and because they are oversubscribed, admission is competitive and depends largely on academic achievement and mastery of basic skills. Unfortunately, because the district does not have the resources to expand offerings of vocational high schools, there is no incentive, and indeed even a strong disincentive, to provide additional remedial instruction that would qualify a disadvantaged student for admission. Similarly, from the student's perspective, the large number of students rejected discourages all but the most determined student from seeking remedial instruction since even with improved academic performance, chances of admission are far from certain.

Admission criteria established for more technical programs produce similar problems for disadvantaged students at the postsecondary level. In this case, as much as a year's work of preparation in math or science may be necessary simply to be considered for admission into certain vocational education programs. For students with limited financial means to support themselves, lengthy preparation is difficult to pursue and carries with it a substantial risk of not being admitted to an oversubscribed program. Consequently, such considerations may effectively force these students to opt for lower quality programs that have no admission requirements, open enrollments, and prospects of lower paying employment.

Further compounding the difficulties faced by minorities, women, the disadvantaged, and the handicapped are problems posed by restricted entry into the labor market. Substantial discrimination persists, and while some of this is probably malevolent, some also results from employers' perceptions that hiring minorities, women (in non-traditional occupations), and the handicapped carries higher risks. It matters not that these perceptions are unfounded, for as long as empoyers believe that hiring increases the chances of such problems as increased labor strife, higher insurance premiums, greater labor turnover, greater probabilities of law suits and other legal problems, lower productivity, etc., they will continue not to hire "high risk" employees, unless they are offered significant financial incentives that reduce the perceived risks. In short, lack of access to high quality vocational programs results in part from a vicious cycle that must be broken if gains are to be realized. Students perceive that restricted job opportunities greatly diminish the rewards of large investments of time and foregone earnings in academic preparation and vocational education that lead to high paying jobs. Employers see few minorities, women, or handicapped students coming through the higher quality programs and remain suspicious of hiring them. The result is a kind of self-reinforcing, structural discrimination.

This structural discrimination, as well as its more malicious counterpart, also limits opportunities in vocational education programs that offer work experience, especially cooperative and apprenticeship programs. Small programs to begin with -- they comprise only about two percent of enrollments in vocational education -- co-op and apprenticeship opportunities are even less available to students who are part of special populations. Job discrimination, however, is only one of several causes of limited participation. Most of the other factors already discussed also impede access to co-op and apprenticeship programs. Thus, in many instances there are simply no job opportunities within traveling distance from the student's home or school. In other cases, co-op and apprenticeship programs carry higher entry requirements either to limit enrollments or to recognize real prerequisites necessary to perform on the job.

While vocational education must shoulder some of the responsibility for limited access, it is clear that many of the impediments are beyond the direct influence of vocational educators. Consequently, if federal legislation is to improve the access of special populations, it must consider more closely how related federal policies impede or strengthen this objective. Section IV below offers some suggestions for more effective coordination.

II. Toward New Vocational Education Legislation

Seeking to address some of the major deficiencies of the present legislation, in this section we propose extensive revision of the Vocational Education Act. Broadly outlined, we envision legislation comprised of three parts. Part I, controlling fifty percent of the federal funds for vocational education, would provide general program support and would distribute funds under a formula designed to "level up" the resources of the neediest eligible recipients. Part II, affecting twenty-five percent of federal VEA funds, would distribute federal funds directly to urban and rural areas to expand enrollments in vocational high schools or shared-time area vocational schools. Part III, distributing the remaining twenty-five percent of VEA funds, would be used to expand enrollments in cooperative, apprenticeship, and other programs offering work experience related to classroom instruction. Recipients of federal funds under any of the three parts would continue to be eligible for funds as long as they could demonstrate either that program enrollments are balanced in terms of race, sex, handicap, and disadvantage, or that they are making sufficient progress (as defined in the law) toward balancing enrollments.

An organizing premise for this reformulation of federal legislation holds that the federal government is too far removed from and too poorly informed on local conditons to be effectively prescriptive on questions of how to improve delivery of vocational education. What is needed in one community may be unnecessary in another. Consequently, the primary aim of federal legislation ought to be establishing a few clearly defined objectives for vocatonal education and holding states and LEAs accountable for realizing those objectives if they are to continue receiving federal funds. As to how those aims are met, states and localities ought to be allowed to pursue whatever strategies seem locally appropriate. Under such approach, federal oversight would concern itself mainly with what states and localities accomplished rather than with how they conform to excessively detailed requirements for planning and funds distribution. In short, reauthorization should seek to centralize national objectives while decentralizing the process for meeting them. In this section, we suggest the outlines of legislation that address this aim.

A. General Program Support. Under Part I of the proposed legislation, half of the federal funds would be available to be used by eligible recipients for whatever purposes they consider appropriate. States would be required to match federal funds dollar for dollar, and both federal and state matching funds under this Part would be distributed by the same formula. Consequently, each federal dollar distributed to eligible recipients would carry a state dollar with it.

The primary objectives of this Part are twofold. First, it continues the aim of the present legislation to aid LEAs that are less able than others to provide the financial resources necessary to provide high quality vocational education in the areas they serve. Second, it seeks to improve the access of minorities, women, the handicapped, and the disadvantaged to high quality vocational education. Meeting the first objective is the responsibility of the state. State administrators would continue to oversee the distribution of funds to eligible recipients, although by specifying the distribution formula in federal legislation, these responsibilities are considerably simplified. Meeting the second objective is largely the responsibility of LEAs, and they are free to determine their own strategies for improving access and achieving balanced enrollments.

The objection will be raised that this approach is not sufficiently prescriptive, that many LEAs will fail to do the "right thing" by not providing adequate support services, in-service training, curriculum development, remedial instruction, or any other of countless activities. We suspect that many LEAs will fail to find the right combination and that progress will be slower in some than in others. However, we submit that there is no single "right" approach that all LEAs can be required to follow. Neither are local conditions similar enough to make such a prescription effective, nor do we know enough to say what the prescription should be. In any event, the bureaucracy responsible for administering the legislation has shown itself largely unable to administer the prescriptive aspects of existing legislation, and we are not confident that its performance will improve by giving it even more to do.

Section III develops the details of the distribution procedures. Generally, we envision a system that allocates funds on the basis of fiscal capacity per unit of weighted full-time equivalent enrollment (WFTE). The legislation specifies what categories of students (e.g., handicapped, disadvantaged, etc.) are to be weighted. It does not specify the weights precisely but offers states a range from which to choose. For example, handicapped FTE may be assigned a weight ranging from 1.4 to 2.0. Additionally, states have the option of weighting enrollments by program costs where sufficient data are available to make these additional calculations.

The fiscal capacity of eligible recipients is determined in one of two ways. In the case where resources are provided entirely by the state -- as is the case for many postsecondary programs -- an eligible recipient's fiscal capacity is simply state revenues for vocational education. In the case where both state and local revenues contribute to vocational education, fiscal capacity is determined by levying a computational tax rate against the local tax base (calculated in terms of porperty values and personal income) and adding the result to state revenues for vocational education. Eligible recipients are then ranked by fiscal capacity per WFTE, and federal and state matching funds are distributed in such a fashion that the lowest is first raised to the level of the second lowest, these two are then raised to the level of the third, and so on until funds are exhausted. Consequently, in states where there are vast differences in fiscal capacity per WFTE, federal and state matching funds under Part I would be concentrated among the very poorest. In states where these differences are less pronounced, funds would be distributed more widely.

B. Assistance to Large Cities and Rural Areas. Twenty-five percent of federal VEA funds would be distributed under Part II to provide assistance to large cities and rural areas. Half of the money under this Part would go directly to cities with populations of 300,000 or more as of the U.S. Census of 1980. These funds would be distributed on a per capita basis, with equal amounts per capita going to all eligible cities. Because of the leveling up feature of Part I, no attempt is made to compensate for differences in fiscal capacity. Consequently, some cities may receive funds under both Parts I and II, while some may receive funds only under

Part II. Funds would flow directly from Washington to the cities, bypassing the states which are not required to match under this Part.

The primary objective of funds for cities under this Part is expansion of programs in vocational high schools and shared-time area vocational schools, or any other program that seeks to concentrate and specialize vocational activities at a particular school (e.g., California's Regional Occupational Programs). To continue to be eligible for funds, a city must demonstrate either that enrollments in vocational high schools, shared-time area schools, and other specialized programs are balanced in terms of race, sex, handicap, and disadvantage or that adequate progress was being made toward such balance. Cities are free to choose any strategy for meeting these twin objectives of expanded programs and balanced enrollments. Thus, funds may be used for construction, equipment purchases, transportation, salary supplements, in-service training, counseling, day care services, or any other purpose deeded appropriate. As a general rule, these funds would be used to expand programs in secondary institutions only. However, if secondary programs would best be served by making use of postsecondary facilities and staff, these funds could be expended at the postsecondary level.

The other half of the funds distributed under this Part would be awarded on a competitive basis to rural areas for projects designed to expand and improve vocational education opportunities for students in rural areas. For purposes of this Part, a rural district is one that contains no city with a 1980 population of 10,000 or more and is not part of an SMSA. Project approval would give priority to proposals for expanding programs in area schools or other shared-time activities that permit a wider variety of program offerings and specialization. However, eligible LEAs could propose alternative projects if they could demonstrate that expansion of programs in area schools or other shared-time activities was infeasible or inappropriate. Further, rural LEAs with secondary enrollments of fewer than 300 students would be required to join with other LEAs to reach a combined enrollment of 300 or more before applications would be considered. Projects could be funded for up to five years, subject to acceptable audits. Additionally, recipients must demonstrate balanced enrollments in vocational education programs or sufficient progress toward balance to continue eligibility for federal funds.

C. Expansion of Cooperative, Apprenticeship, and Other Work Experience

Under Part III, states would receive twenty-five percent of federal funds to distribute to secondary and postsecondary LEAs for expanding cooperative, apprenticeship, and other vocational education programs that offer work experience related to classroom instruction. States would be required to match federal funds dollar for dollar and to distribute funds to LEAs on the basis of equal federal and state dollars per WFTE enrollment in vocational education. Here again, because Part I seeks to compensate for fiscal capacity, Part III funds are not constrained by this consideration; however, funds are to be allocated on the basis of weighted FTE as calculated for Part I, thus directing more funds per student to LEAs with greater numbers of students in special populations. To continue to be eligible for funds under this Part, LEAs must demonstrate balanced enrollments in cooperative, apprenticeship, and other work-experience programs or adequate progress toward balance.

D. Defining "Balanced Enrollments" and "Sufficient Progress" Toward Balance

One of the primary objectives underlying each of the three Parts of this proposal is achieving balanced vocational education enrollments in terms of race, sex, handicap, and disadvantage. For purposes of this proposal, we consider enrollments in the relevant programs to be balanced if the proportions of minority, male and female, handicapped, and disadvantaged students in these programs are equal to the respective proportions of these groups in the secondary or postsecondary enrollments of the LEA, plus or minus twenty percent of that proportion. Thus, if boys are 50 percent of total secondary enrollments (total enrollments, not only vocational education) in an LEA, a program will be considered sexually balanced if it contains from 40 to 60 percent boys (.2 x 50 = 10; 50 ± 10 = 40 to 60). Similarly, if blacks are 30 percent of an LEA's secondary enrollment, a program will be considered racially balanced if blacks represent from 24 to 36 percent (.2 x 30 = 6; 30 ± 6 = 24 to 36) of that program's enrollment.

Standards of balance would apply to program enrollments at the level of four-digit OE Codes. Because programs at the six-digit level are frequently quite small (often containing fewer than 20 students), quantitative standards are impractical. Balance at the level of two-digit OE Codes, however, is too general to be meaningful. For purpose of this legislation, there are eight categories of special populations (four racial groupings -- American Indian/Alaskan Native, Asian American/Pacific Islander, Black Not Hispanic, and Hispanic -- males and females, handicapped, and disadvantaged). LEAs would be expected to achieve balance at the level of four-digit OE Codes for any group exceeding 5 percent of the LEA's total enrollments. This "5 percent rule" is adopted because below that proportion, the absolute number of students is likely to be too small to make quantitative standards practical at the four-digit program level. Nevertheless, LEAs would still be expected to achieve balance within the overall vocational education program for groups representing less than 5 percent of total enrollments. Thus, in an LEA where males are 55 percent of total enrollments, Hispanics are 15 percent, Asians 4 percent, blacks 3 percent, handicapped 9 percent, and disadvantaged 7 percent, enrollments at the four-digit level must be balanced in terms of sex, Hispanic, handicapped, and disadvantaged students. Over all vocational programs, Asians must be from 3.2 to 4.8 percent of enrollments and blacks from 2.4 to 3.6 percent.

For programs out of balance, sufficient progress toward balance is defined as an annual increase in enrollment of 15 percent of the difference between the districtwide average proportion of the special population and the proportion enrolled in the program. For example, if Hispanics are 20 percent of district enrollments but only 10 percent of enrollments in Aviation Occupations (OE Code 17.04), then sufficient progress toward balance would be an increase of 1.5 percent the first year (.15 x (20 - 10) = .15 x 10 = 1.5 percent), an additional 1.3 percent the second year (.15 x (20 - 11.5) = .15 x 8.5 = 1.3 percent), 1.1 percent the third year (.15 x (20 - 12.8) = .15 x 7.2 = 1.1 percent), .9 percent the fourth year (.15 x (20 - 13.9) = .15 x 6.1 = 9 percent), and so on until balance is achieved. In this example, balance is achieved when Hispanic enrollments exceed 16 percent (20 ± .2(20) = 20 ± 4 = 16 to 24 percent), which would occur in the sixth year for this particular program if enrollments goals were met. An LEA that exceeded its enrollment goal in one year could apply the excess toward the following years. Finally, recognizing that it is unwise to penalize severely LEAs that are making substantial progress toward meeting these objectives, an LEA would continue to be eligible for federal funds if it could demonstrate that at least 90 percent of students enrolled in vocational education programs were enrolled in programs that either were in balance or had made the required progress toward balance.

III. Distribution Procedures

Funds allocated for general program support under Part I would be distributed under a distribution formula specified in the federal legislation. The distribution procedures consist of three basic steps: 1) weighting enrollments, 2) determining fiscal capacity, and 3) leveling up resources based on fiscal capacity per unit of weighted enrollment. Each of these steps will be explained.

A. Weighting Enrollments in Vocational Education. The first step in the distribution process requires weighting the vocational education enrollment of each eligible recipient to reflect the needs of special populations. At a minimum, each state would be required to calculate enrollments weighted for the numbers of handicapped, disadvantaged, and limited English proficiency students. Additionally, states would have options of making finer distinctions among handicapped students, establishing an incentive system for achieving balanced enrollments, and weighting for differences in costs per students among different types of programs at the two, four, or six-digit program level.

1. Required Weighting. For each eligible recipient, the state would determine weighted enrollment using the following general formula[*]

$$WE = VE + aHE + bDE + cLEP \tag{1}$$

where WE = weighted vocational education enrollment

VE = the recipient's total enrollment (unduplicated or FTE) in vocational education

HE = number of handicapped students enrolled in vocational education

DE = number of disadvantaged students enrolled in vocational education

LEP = number of students with limited English proficiency enrolled in vocational education.

The coefficients a, b, and c are the weights given to each population and must lie within the following ranges:

a (handicapped) = .4 to 1.0

b (disadvantaged) = .3 to .7

c (limited English) = .15 to .3

Duplicate counting is required such that a student that is handicapped and disadvantaged would be counted first as part of VE, second as part of HE, and third as part of DE. Ideally, enrollments would be expressed in terms of full-time equivalents (FTE) or average daily membership (ADM), but where states lack such data, simple enrollments could be employed.

To illustrate how the formula would work, consider the following hypothetical example in a state choosing the maximum weights in all three categories. An eligible recipient has 450 students enrolled in vocational education. Of these, 53 are handicapped, 94 are academically or economically disadvantaged, and 22 have limited English proficiency. The total weighted enrollment for this district is therefore:

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[*] Where available, FTE should be used throughout.

$$WE = 450 + 1.0(53) + .7(94) + .3(22) \tag{2}$$

$$WE = 450 + 53 + 65.8 + 6.6$$

$$WE = 575.4$$

2. Option One: Distinguishing Among Different Types of Handicapped and Disadvantaged Students. A state wishing to make finer distinctions among different types of students with special needs could adopt a variation of the formula for weighting enrollments. For example, suppose a state wanted to establish different weights for five classifications of handicapped students and two classifications of disadvantaged. It could vary the basic formula as follows:

$$WE = VE + a_1HE_1 + a_2HE_2 + a_3HE_3 + a_4HE_4 + a_5HE_5 + b_1DE_1 + b_2DE_2 + cLEP \tag{3}$$

where HE_1, HE_2, etc. are enrollments of students with particular handicaps, and a_1, a_2, etc. are different weights (within the specified range of .4 to 1.0) applied to each group. As long as a state kept weights within the required ranges, it would be free to establish as many sub-categories as it wished. Students with multiple handicaps could be counted more than once or assigned to the category carrying the highest weight. Similarly, a student who was both academically and economically disadvantaged could be counted twice or assigned to the classification with the greatest weight. Students who are both handicapped and disadvantaged must be counted twice.

3. Option Two: Incentives for Achieving Balanced Enrollments. The basic formula (1) could also be modified to encourage recipients to balance programs by race and sex. For programs that are out of balance racially, the state would calculate the increase in minority enrollments, ME, from the previous year. For programs that are sexually imbalanced, the state would calculate the increase in males and females (one or the other depending on the nature of the imbalance), SE, from the previous year. Each increase would be weighted and included in the general formula as follows:

$$WE = VE + aHE + bDE + cLEP + dME + eSE \qquad (4)$$

States choosing to adopt this option would be free to determine the weights d and e. Weights in the range of .05 to .2 seem appropriate and likely to offer effective incentives.

4. Option Three: Weighting Enrollments to Reflect Differences in Program Costs. States able to determine differences in costs per student among different programs could modify formula (1) to account for these differences. First, using formula (1), weighted enrollment in each program -- WE_1, WE_2, WE_3, etc. -- must be calculated:

$$WE_1 = VE_1 + aHE_1 + bDE_1 + cLEP_1 \qquad (5)$$

The weighted program enrollments are further weighted to reflect cost differences:

$$WE = p_1WE_1 + p_2WE_2 + p_3WE_3 + \ldots \qquad (6)$$

where the coefficients p_1, p_2, p_3, etc. are weights adjusting for differences in costs. For example, consider a recipient with three different programs costing \$950, \$1,075, and \$1,320 per student respectively against an average cost of \$1,000. Weighted enrollments in these programs are respectively 75, 67, and 84. Then, total weighted enrollment would be calculated:

$$\begin{aligned} WE &= .95(75) + 1.075(67) + 1.32(84) \qquad (7) \\ WE &= 71.25 + 72.025 + 110.88 \\ WE &= 254.155 \end{aligned}$$

Note that this optional cost-weighting formula can include any or all of the features available under Options 1 and 2.

B. Determining Fiscal Capacity. The fiscal capacity of an eligible recipient would be determined using one of two methods, one employed for vocational education programs not supported with any local tax revenues and another for those that do receive local funds. In the first case, fiscal capacity is simply budgeted expenditures for vocational education, excluding any anticipated revenues under VEA and required state matching funds. In the second case, fiscal capacity is computed based on equalized assessed property values and personal income (where available). This calculation is a bit more complicated and requires elaboration.

Using the conventional measure of local fiscal capacity, assessed property value, fails to distinguish between localities with significant differences in income. Consequently, one typically finds a number of "high wealth" LEAs with large numbers of low-income households and a number of "poor" LEAs with large numbers of high-income households.

To avoid these inequities, most students of public finance now agree that measures of local fiscal capacity should reflect differences in both property values and incomes. However, property values and personal income cannot be directly compared. In the language of economists, the first is a "stock," the second is a "flow," and to be properly compared a flow must be converted to a stock or vice versa.

One way to compare and combine property values with personal income is to impute the income (the flow) that is produced by property values (the stock). This can be done if the rate of return to property is known or can be estimated. For example, if a house worth $100,000 returns $10,000 annually in net rent, the net rate of return is 10 percent per annum. Alternatively, an investor able to realize a net rate of return of 10 percent in high grade government bonds would pay no more than $100,000 for a house returning a net rent of $10,000 since to pay more would diminish the rate of return relative to what could be obtained elsewhere. In other words, the relationship between property value, V, and rental income, RI, can be stated as follows:

$$rV = RI \tag{8}$$

where r is the prevailing interest rate. Thus, if we can establish the average prevailing rate of return to real property, we can compute a measure of local fiscal capacity, LFC, that combines property value, V, and personal income, PI, as follows:

$$rV + PI = LFC \tag{9}$$

or

$$RI + PI = LFC$$

We now have an estimate of total local income, which for purposes of this legislation we will use to define fiscal capacity.* The appropriate rate for r cannot be determined exactly. We recommend that it be set annually by the Department of Education at the prevailing rate on long-term government debt, presently around ten percent.

Once LFC is determined for each eligible recipient, it is necessary to establish a computational tax rate that can be used to compute a "fair" local contribution for vocational education. In states where the local contribution is known, we recommend that this rate, t, be set at the average rate for the state:

$$t = \frac{\sum LE}{\sum LFC} \qquad (10)$$

where LE is local expenditures for vocational education. This rate is for computational purposes only. Local eligible recipients are free to spend more or less local money on vocational education, but this rate will be used to determine the expected share that will be used to distribute federal and state matching money. For each eligible recipient, then, the state calculates the expected local share, ELS_d:

$$ELS_d = tLFC_d$$

To this amount is added additional funds used for vocational education, SA_d, excluding money received under VEA. SA_d would include any state aid in excess of the 50:50 match and any federal funds from sources other than VEA used to provide vocational education. Hence for each eligible recipient, total fiscal capacity, TFC_d, is now:

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*The purist will object that this approach leads to double counting since some rental income and return on capital are both partially reflected in personal income. This is certainly true in the case of rental income and is true of income on capital to the extent that earnings are distributed in the form of dividends. A more precise calculation might exclude rental property from the determination if such value could be readily determined. However, in our view, this is insisting on unnecessary precision.

$$TFC_d = ELS_d + SA_d \tag{12}$$

For eligible recipients with no local contribution, ELS_d is zero, and TFC_d is based on SA_d only -- the "first case" described above. We are now able to perform the final step in calculating relative financial ability, RFA_d:

$$RFA_d = \frac{TFC_d}{WE_d} \tag{13}$$

RFA_d, a measure of expenditures per unit of weighted enrollment and adjusted for differences in local fiscal capacity and state aid, can now be used to determine the distribution of federal VEA funds and state matching monies, the final step in the distribution process.

C. Distributing Federal and State VEA Funds. After RFA_d has been determined for every eligible recipient, recipients are ranked from lowest RFA to highest. VEA funds and state matching funds are then used to "level up," bringing expenditures per student of the LEA with the lowest RFA up to expenditures per student of the second lowest, these two up to the level of the third, and so forth until funds are exhausted. Generally, the procedure would go forth as follows:

Step 1: $$(RFA_2 - RFA_1)WE_1 = VEA_1 \tag{14}$$

This calculates the minimum amount of money available to the LEA with the lowest RFA. If this figure is greater than total federal and state dollars available, it would be prorated. If funds remain, we would proceed to the next step.

Step 2: $(RFA_3 - RFA_2)(WE_1 + WE_2) = VEA_2$ (14a)

This calculates the amount necessary to bring the first two up to the level of the third with VEA_2 divided among recipients 1 and 2 in proportion to enrollments [i.e., recipient 1's share is $\frac{WE_1}{WE_1 + WE_2}(VEA_2)$]. If funds remaining are insufficient to cover VEA_2, VEA_2 must be prorated and divided between recipients 1 and 2 in proportion to weighted enrollments. If funds remain, we would proceed to level the first three up to the level of the fourth.

Step 3: $(RFA_4 - RFA_3)(WE_1 + WE_2 + WE_3) = VEA_3$ (14b)

The same rules used in Step 2 apply here. If funds are inadequate to cover the full amount of VEA_3, the amount is prorated and distributed among the three LEAs in proportion to weighted enrollment. If funds remain, the leveling up procedure continues.

This leveling up procedure applies only to funds distributed under Part I. Part II funds would be allocated on a per capita basis directly to eligible cities from the Department of Education. Part II funds to rural areas would also be awarded directly by the Department of Education on a competitive basis. Finally, Part III funds, along with the state match, would be distributed by states to eligible recipients on the basis of equal amounts per unit of weighted enrollment (WE as calculated for purposes of distributing funds under Part I). These procedures would be clearly specified in the legislation, along with the range of weights states would be permitted to adopt.

D. Reporting Requirements. Under this proposal, annual reporting requirements would be substantially reduced. Each state would submit an Annual Plan and Accountability Report using a format common to all states. The Annual Plan would be concerned primarily with describing for the upcoming fiscal year the procedures for distributing federal and state matching funds, as well as the goals for achieving balanced enrollments. The Accountability Report would describe, for the previous fiscal year, actual expenditures and enrollments and evaluate recipients' progress toward achieving enrollment balance.

1. Annual Plan. The Annual Plan would have two major sections. The first would describe the procedures used by the state to distribute funds to eligible recipients. It would report five categories of information:

1) The distribution formula adopted by the state -- i.e., the required minimum formula or any of the three options.
2) The weights assigned to the coefficients for variables in the adopted formula.
3) The scores of eligible recipients on each of the variables and total weighted enrollment.
4) Property value, personal income, and state aid for each eligible recipient, as well as the computational tax rate used by the state.
5) Allocations to eligible recipients under Parts I and III.

The second section of the plan would describe goals for achieving balanced enrollments and would report the following information for each recipient of VEA funds:

1) The number of programs completely in balance and the number of students enrolled in these programs.

2) Each program that is out of balance, the magnitude of the imbalance, and the annual goal for making sufficient progress toward balance.

2. Accountability Report. The Accountability Report would contain four sections. The first would describe actual expenditures by eligible recipients for vocational education as follows:

1) Federal and state expenditures under Parts I and III.

2) Additional state expenditures on vocational education.

3) Local expenditures for vocational education.

The second section would report for each eligible recipient:

1) Enrollments by race, sex, handicap, disadvantaged, and limited English proficiency for each four-digit OE program code.

2) Enrollments by race, sex, handicap, disadvantaged, and limited English proficiency for each apprenticeship, cooperative, or other program with related work experience.

The third section would report for each eligible recipient those programs that were in balance at the outset of the year and those that achieved balance by the end of the year. The fourth section would describe for each eligible recipient programs that were not in balance at the close of the year. It would describe:

1) Programs in which sufficient progress had been achieved.

2) Programs that had not achieved annual progress goals.

   a) An assessment of why goals had not been achieved.

   b) A statement of action taken.

IV. Some Concluding Comments on Coordination

The responsibility for expanding high quality programs and improving the access of groups heretofore underrepresented in these programs cannot be borne by vocational education alone. The legislation we have proposed establishes some strong incentives for vocational educators to address these twin aims more effectively, but better coordination with federal programs must be achieved if greater program improvement and accessibility are to be realized. Specifically, federal policy must recognize that some students -- minorities, women, the handicapped, and the disadvantaged -- face higher costs and greater risks in opting for many of the better training programs. As was explained in Section I, even when room can be made for these students in vocational education programs, the time and money required to obtain the required entry level skills, as well as doubts about employment prospects, create substantial obstacles that may discourage students from opting for more technical and more demanding training. How can federal policy reduce these disincentives?

First, as part of their effort toward achieving balanced enrollments in vocation education, recipients of federal funds could be required to guarantee to a number of underrepresented students enrollment in the program of their choice, conditional only on satisfactory completion of the prerequisites. The number of guaranteed openings would equal the recipients' annual enrollment goals for achieving balanced enrollments. Second, for students in secondary programs, a portion of funds distributed under ESEA would be reserved to provide these students with the remedial instruction and basic skills necessary for admission to the vocational education program. For students in postsecondary programs, a portion of funds authorized under the Higher Education Act would be reserved to provide stipends for students pursuing necessary background courses required for entry into certain occupational training programs. To qualify for such funds, a student would be required to develop with college counselors an Individualized Career Program (ICP) specifying the student's career objectives, the training desired, the necessary prerequisites from the general postsecondary curriculum, and a schedule for completing the program. The ICP would represent a contract between the student and the institution, with the student receiving from the institution a guarantee of financial support and placement in the desired occupational training program in return for satisfactory performance by the student within the agreed upon schedule.

To better address the problem of limited job opportunities upon completing the program, we propose that a job development grant be included as part of the ICP. This grant, which might represent a wage subsidy of up to 50 percent of the student's first year wages, would follow the student and could be used in any job of the student's choosing once the basic skills education and occupational training had been completed. Further, if the student left the job during the first year, the unused portion would be transferrable. The ability to transfer the grant could apply both to changes in position within a single firm and to changes from one firm to another. Thus, if the grant guaranteed a percentage of wages reimbursed rather than a flat amount, it would contain a built-in incentive for employers to promote qualified students quickly; however, some safeguards might be needed to prohibit unwarranted demotions when the grant expired.

A possible source of funding for job development grants is the existing CETA program, perhaps using the 22 percent setaside for vocational education as well as other CETA funds now used to create jobs. Presently, CETA tends to create jobs indiscriminately with little attention to the capabilities of those eligible, to present labor market conditions, or the long-term employment objectives of CETA workers. An advantage of a job development grant under the control of the student is that the type of job, size of firm, and location can be more closely tailored to the student's individual desires.

These are but two examples for better coordination among different federal programs, and there are undoubtedly other opportunities for developing more integrated programs for training and job development. Community development grants, Small Business Administration programs, programs administered under the Economic Development Administration, and HUD's housing rehabilitation programs all have as one of their objectives job creation and training; however, none of these programs is closely tied to local education systems, CETA, or other manpower programs. A strong commitment to an integrated approach to developing basic skills, occupational training, and creating more good jobs would include a thorough review of these other federal programs with much more attention to the contradictions among them, as well as opportunities for linking them more effectively. Much research needs to be done in this area of policy analysis and development.

In closing, we recognize that adopting legislation of the type proposed here would require more careful attention to details, as well as some estimates of how the distribution of funds would differ from that produced by present law. However, we hope that this proposal serves to focus the debate about reauthorization on what Federal objectives ought to be regarding vocational education and whether states and localities can reasonably be held accountable for addressing them. We hope further that serious consideration of this proposal would help to avoid the divisive and largely unproductive infighting among the various special interest groups seeking their share of the federal dollar and control over how it is spent. *What* states and localities ought to be trying to accomplish in vocational education strikes us as an eminently appropriate and important concern for Federal policy. *How* they do it is their own affair and, in any event, not something the Federal government can expect to control with much competence or useful result.